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Schupp, Thomas
Toupet, Christine
Engel, Nathalie

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<212> PRT

<213> *Amycolatopsis mediterranei*

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  20               25              30

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 His Ser Leu Ser His Ile Ala Cys Val Leu Ser Ala Thr Val Val Gly
 50 55 60
 Ala Ser Val Arg Ile Ala Asp Gly Ser Ser Ala Asp Asp Val Met Arg
 65 70 75 80
 Leu Ile Glu Ala Glu Ser Ser Thr Phe Leu Ala Gly Val Pro Thr Thr
 85 90 95
 Tyr His His Leu Val Arg Ala Ala Arg Gln Arg Gly Phe Ser Ala Pro
 100 105 110
 Ser Leu Arg Ile Gly Leu Ala Gly Gly Ala Val Leu Gly Ala Gly Leu
 115 120 125
 Arg Ser Glu Phe Glu Glu Thr Phe Gly Val Pro Leu Ile Asp Ala Tyr
 130 135 140
 Gly Ser Thr Glu Thr Cys Gly Ala Ile Thr Met Asn Pro Pro Asp Gly
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 Arg Val Val Asp Pro Asp Thr Gly Leu Asp Val Pro Ala Gly Glu Glu
 180 185 190
 Gly Glu Val Trp Val Ser Gly Pro Asn Val Met Leu Gly Tyr His Asn
 195 200 205
 Ser Pro Glu Ala Thr Ala Ala Ala Met Arg Asp Gly Trp Phe Arg Thr
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 Gly Asp Leu Ala Arg Arg Asp Asp Ala Gly Tyr Phe Thr Ile Cys Gly
 225 230 235 240
 Arg Ile Lys Glu Leu Ile Ile Arg Gly Gly Ala Asn Ile His Pro Gly
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 Glu Val Glu Ala Val Leu Arg Thr Val Asp Gly Val Ala Asp Ala Ala
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 Val Gly Gly Val Pro His Asp Thr Leu Gly Glu Val Pro Val Ala Tyr
 275 280 285
 Val Ile Pro Gly Pro Thr Gly Phe Asp Pro Ala Ala Leu Ile Glu Lys
 290 295 300
 Cys Arg Glu Gln Leu Ser Ala Tyr Lys Val Pro Asp Arg Ile Leu Glu
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 Val Ala His Ile Pro Arg Thr Ala Ser Gly Lys Ile Arg Arg Gly Leu
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 Glu Gln Ser Arg His Ala Asp Glu Ser Val Ala Ala Ala Leu Arg Ala

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 Gly Val Gly Val Val Val Leu Glu Arg Leu Ser Val Ala Arg Glu Arg
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 Gly His Arg Ile Leu Ala Val Leu Arg Gly Ser Ala Val Asn Gln Asp
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 945 950 955 960
 Glu Ala Val Thr Gly Leu Arg Ala Leu Asn Thr Ala Gly Ser Gly Thr
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 Pro Gly Lys Val Val Trp Val Phe Pro Gly Gln Gly Thr Gln Trp Ala
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 Gly Met Gly Arg Glu Leu Leu Ala Glu Ser Pro Val Phe Ala Glu Arg
 995 1000 1005

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2340	2345	2350	
Leu Leu Ala Thr Tyr Gly Gln Asn Arg Glu Thr Pro Leu Trp Leu Gly			
2355	2360	2365	
Ser Val Lys Ser Asn Leu Gly His Thr Gln Ala Ala Ala Gly Val Ala			
2370	2375	2380	
Gly Val Ile Lys Met Val Met Ala Met Arg His Gly Val Leu Pro Arg			
2385	2390	2395	2400
Thr Leu His Val Asp Arg Pro Ser Ser Tyr Val Asp Trp Ser Ala Gly			
2405	2410	2415	
Ala Val Glu Leu Leu Thr Glu Ala Arg Asp Trp Val Ser Asn Gly His			
2420	2425	2430	
Pro Arg Arg Ala Gly Val Ser Ser Phe Gly Ile Gly Gly Thr Asn Ala			
2435	2440	2445	
His Val Val Leu Glu Glu Val Ala Ala Pro Ile Thr Thr Pro Gln Pro			
2450	2455	2460	
Glu Pro Ala Glu Phe Leu Val Pro Val Leu Val Ser Ala Arg Thr Ala			
2465	2470	2475	2480
Ala Gly Leu Arg Gly Gln Ala Gly Arg Leu Ala Ala Phe Leu Gly Asp			
2485	2490	2495	
Arg Thr Asp Val Arg Val Pro Asp Ala Ala Tyr Ala Leu Ala Thr Thr			
2500	2505	2510	
Arg Ala Gln Leu Asp His Arg Ala Val Val Leu Ala Ser Asp Arg Ala			
2515	2520	2525	
Gln Leu Cys Ala Asp Leu Ala Ala Phe Gly Ser Gly Val Val Thr Gly			
2530	2535	2540	
Thr Pro Val Asp Gly Lys Leu Ala Val Leu Phe Thr Gly Gln Gly Ser			
2545	2550	2555	2560
Gln Trp Ala Gly Met Gly Arg Glu Leu Ala Glu Thr Phe Pro Val Phe			
2565	2570	2575	
Arg Asp Ala Phe Glu Ala Ala Cys Glu Ala Val Asp Thr His Leu Arg			
2580	2585	2590	
Glu Arg Pro Leu Arg Glu Val Val Phe Asp Asp Ser Ala Leu Leu Asp			
2595	2600	2605	
Gln Thr Met Tyr Thr Gln Gly Ala Leu Phe Ala Val Glu Thr Ala Leu			
2610	2615	2620	
Phe Arg Leu Phe Glu Ser Trp Gly Val Arg Pro Gly Leu Leu Ala Gly			
2625	2630	2635	2640

His Ser Ile Gly Glu Leu Ala Ala Ala His Val Ser Gly Val Leu Asp
 2645 2650 2655

Leu Ala Asp Ala Gly Glu Leu Val Ala Ala Arg Gly Arg Leu Met Gln
 2660 2665 2670

Ala Leu Pro Ala Gly Gly Ala Met Val Ala Val Gln Ala Thr Glu Asp
 2675 2680 2685

Glu Val Ala Pro Leu Leu Asp Gly Thr Val Cys Val Ala Ala Val Asn
 2690 2695 2700

Gly Pro Asp Ser Val Val Leu Ser Gly Thr Glu Ala Ala Val Leu Ala
 2705 2710 2715 2720

Val Ala Asp Glu Leu Ala Gly Arg Gly Arg Lys Thr Arg Arg Leu Ala
 2725 2730 2735

Val Ser His Ala Phe His Ser Pro Leu Met Glu Pro Met Leu Asp Asp
 2740 2745 2750

Phe Arg Ala Val Ala Glu Arg Leu Thr Tyr Arg Ala Gly Ser Leu Pro
 2755 2760 2765

Val Val Ser Thr Leu Thr Gly Glu Leu Ala Ala Leu Asp Ser Pro Asp
 2770 2775 2780

Tyr Trp Val Gly Gln Val Arg Asn Ala Val Arg Phe Ser Asp Ala Val
 2785 2790 2795 2800

Thr Ala Leu Gly Ala Gln Gly Ala Ser Thr Phe Leu Glu Leu Gly Pro
 2805 2810 2815

Gly Gly Ala Leu Ala Ala Met Ala Leu Gly Thr Leu Gly Gly Pro Glu
 2820 2825 2830

Gln Ser Cys Val Ala Thr Leu Arg Lys Asn Gly Ala Glu Val Pro Asp
 2835 2840 2845

Val Leu Thr Ala Leu Ala Glu Leu His Val Arg Gly Val Gly Val Asp
 2850 2855 2860

Trp Thr Thr Val Leu Asp Glu Pro Ala Thr Ala Val Gly Thr Val Leu
 2865 2870 2875 2880

Pro Thr Tyr Ala Phe Gln His Gln Arg Phe Trp Val Asp Val Asp Glu
 2885 2890 2895

Thr Ala Ala Val Ser Val Thr Pro Pro Pro Ala Glu Pro Ile Val Asp
 2900 2905 2910

Arg Pro Val Gln Asp Val Leu Glu Leu Val Arg Glu Ser Ala Ala Val
 2915 2920 2925

Val Leu Gly His Arg Asp Ala Gly Ser Phe Asp Leu Asp Arg Ser Phe
 2930 2935 2940

Lys Asp His Gly Phe Asp Ser Leu Ser Ala Val Lys Leu Arg Asn Arg
 2945 2950 2955 2960

Leu Arg Asp Phe Thr Gly Val Glu Leu Pro Ser Thr Leu Ile Phe Asp
 2965 2970 2975
 Tyr Pro Asn Pro Ala Val Leu Ala Asp His Leu Arg Ala Glu Leu Leu
 2980 2985 2990
 Gly Glu Arg Pro Ala Ala Pro Ala Pro Val Thr Arg Asp Val Ser Asp
 2995 3000 3005
 Glu Pro Ile Ala Ile Val Gly Met Ser Thr Arg Leu Pro Gly Gly Ala
 3010 3015 3020
 Asp Ser Pro Glu Glu Leu Trp Lys Leu Val Ala Glu Gly Arg Asp Ala
 3025 3030 3035 3040
 Val Ser Gly Phe Pro Val Asp Arg Gly Trp Asp Leu Asp Gly Leu Tyr
 3045 3050 3055
 His Pro Asp Pro Ala His Ala Gly Thr Ser Tyr Thr Arg Ser Gly Gly
 3060 3065 3070
 Phe Leu His Asp Ala Ala Gln Phe Asp Ala Gly Leu Phe Gly Ile Ser
 3075 3080 3085
 Pro Arg Glu Ala Leu Ala Met Asp Pro Gln Gln Arg Leu Leu Leu Glu
 3090 3095 3100
 Thr Ser Trp Glu Ala Leu Glu Arg Ala Gly Val Asp Pro Leu Ser Ala
 3105 3110 3115 3120
 Arg Gly Ser Asp Val Gly Val Phe Thr Gly Ile Val His His Asp Tyr
 3125 3130 3135
 Val Thr Arg Leu Arg Glu Val Pro Glu Asp Val Gln Gly Tyr Thr Met
 3140 3145 3150
 Thr Gly Thr Ala Ser Ser Val Ala Ser Gly Arg Val Ala Tyr Val Phe
 3155 3160 3165
 Gly Phe Glu Gly Pro Ala Val Thr Val Asp Thr Ala Cys Ser Ser Ser
 3170 3175 3180
 Leu Val Ala Met His Leu Ala Ala Gln Ala Leu Arg Gln Gly Glu Cys
 3185 3190 3195 3200
 Ser Met Ala Leu Ala Gly Gly Ala Thr Val Met Ala Ser Pro Asp Ala
 3205 3210 3215
 Phe Leu Glu Phe Ser Arg Gln Arg Gly Leu Ser Ala Asp Gly Arg Cys
 3220 3225 3230
 Lys Ala Tyr Ala Glu Gly Ala Asp Gly Thr Gly Trp Ala Glu Gly Val
 3235 3240 3245
 Gly Val Val Val Leu Glu Arg Leu Ser Val Ala Arg Glu Arg Gly His
 3250 3255 3260
 Arg Val Leu Ala Val Leu Arg Gly Ser Ala Val Asn Gln Asp Gly Ala
 3265 3270 3275 3280
 Ser Asn Gly Leu Thr Ala Pro Asn Gly Pro Ser Gln Gln Arg Val Ile

3285	3290	3295
Arg Gly Ala Leu Ala Ser Ala Gly Leu Ala Pro Ser Asp Val Asp Val 3300	3305	3310
Val Glu Gly His Gly Thr Gly Thr Ala Leu Gly Asp Pro Ile Glu Val 3315	3320	3325
Gln Ala Leu Leu Ala Thr Tyr Gly Gln Glu Arg Glu Gln Pro Leu Trp 3330	3335	3340
Leu Gly Ser Leu Lys Ser Asn Leu Gly His Thr Gln Ala Ala Ala Gly 3345	3350	3355 3360
Val Val Gly Val Ile Lys Met Ile Met Ala Met Arg His Gly Val Met 3365	3370	3375
Pro Ala Thr Leu His Val Asp Glu Arg Thr Ser Gln Val Asp Trp Ser 3380	3385	3390
Ala Gly Ala Ile Glu Val Leu Thr Glu Ala Arg Glu Trp Pro Arg Thr 3395	3400	3405
Gly Arg Pro Arg Arg Ala Gly Val Ser Ser Phe Gly Ala Ser Gly Thr 3410	3415	3420
Asn Ala His Leu Ile Ile Glu Glu Gly Pro Ala Glu Glu Ala Val Asp 3425	3430	3435 3440
Glu Glu Val Ala Ser Val Val Pro Leu Val Val Ser Ala Arg Ser Ala 3445	3450	3455
Gly Ser Leu Ala Gly Gln Ala Gly Arg Leu Ala Ala Val Leu Glu Asn 3460	3465	3470
Glu Ser Leu Ala Gly Val Ala Gly Ala Leu Val Ser Gly Arg Ala Thr 3475	3480	3485
Leu Asn Glu Arg Ala Val Val Ile Ala Gly Ser Arg Asp Glu Ala Gln 3490	3495	3500
Asp Gly Leu Gln Ala Leu Ala Arg Gly Glu Asn Ala Pro Gly Val Val 3505	3510	3515 3520
Thr Gly Thr Ala Gly Lys Pro Gly Lys Val Val Trp Val Phe Pro Gly 3525	3530	3535
Gln Gly Ser Gln Trp Met Gly Met Gly Arg Asp Leu Leu Asp Ser Ser 3540	3545	3550
Pro Val Phe Ala Ala Arg Ile Lys Glu Cys Ala Ala Ala Leu Glu Gln 3555	3560	3565
Trp Thr Asp Trp Ser Leu Leu Asp Val Leu Arg Gly Asp Ala Asp Leu 3570	3575	3580
Leu Asp Arg Val Asp Val Val Gln Pro Ala Ser Phe Ala Met Met Val 3585	3590	3595 3600
Gly Leu Ala Ala Val Trp Thr Ser Leu Gly Val Thr Pro Asp Ala Val 3605	3610	3615

Leu Gly His Ser Gln Gly Glu Ile Ala Ala Ala Cys Val Ser Gly Ala
 3620 3625 3630

Leu Ser Leu Asp Asp Ala Ala Lys Val Val Ala Leu Arg Ser Gln Ala
 3635 3640 3645

Ile Ala Gly Glu Leu Ala Gly Arg Gly Gly Met Ala Ser Val Ala Leu
 3650 3655 3660

Ser Glu Glu Asp Ala Val Ala Arg Leu Thr Pro Trp Ala Asn Arg Val
 3665 3670 3675 3680

Glu Val Ala Ala Val Asn Ser Pro Ser Ser Val Val Ile Ala Gly Asp
 3685 3690 3695

Ala Gln Ala Leu Asp Glu Ala Leu Glu Ala Leu Ala Gly Asp Gly Val
 3700 3705 3710

Arg Val Arg Arg Val Ala Val Asp Tyr Ala Ser His Thr Arg His Val
 3715 3720 3725

Glu Ala Ile Ala Glu Thr Leu Ala Lys Thr Leu Ala Gly Ile Asp Ala
 3730 3735 3740

Arg Val Pro Ala Ile Pro Phe Tyr Ser Thr Val Leu Gly Thr Trp Ile
 3745 3750 3755 3760

Glu Gln Ala Val Val Asp Ala Gly Tyr Trp Tyr Arg Asn Leu Arg Gln
 3765 3770 3775

Gln Val Arg Phe Gly Pro Ser Val Ala Asp Leu Ala Gly Leu Gly His
 3780 3785 3790

Thr Val Phe Val Glu Ile Ser Ala His Pro Val Leu Val Gln Pro Leu
 3795 3800 3805

Ser Glu Ile Ser Asp Asp Ala Val Val Thr Gly Ser Leu Arg Arg Asp
 3810 3815 3820

Asp Gly Gly Leu Arg Arg Leu Leu Ala Ser Ala Ala Glu Leu Tyr Val
 3825 3830 3835 3840

Arg Gly Val Ala Val Asp Trp Thr Ala Ala Val Pro Ala Ala Gly Trp
 3845 3850 3855

Val Asp Leu Pro Thr Tyr Ala Phe Asp Arg Arg His Phe Trp Leu His
 3860 3865 3870

Glu Ala Glu Thr Ala Glu Ala Ala Glu Gly Met Asp Gly Glu Phe Trp
 3875 3880 3885

Thr Ala Ile Glu Gln Ser Asp Val Asp Ser Leu Ala Glu Leu Leu Glu
 3890 3895 3900

Leu Val Pro Glu Gln Arg Gly Ala Leu Ser Thr Val Val Pro Val Leu
 3905 3910 3915 3920

Ala Gln Trp Arg Asp Arg Arg Arg Glu Arg Ser Thr Ala Glu Lys Leu
 3925 3930 3935

Arg Tyr Gln Val Thr Trp Gln Pro Leu Glu Arg Glu Ala Ala Gly Val
 3940 3945 3950
 Pro Gly Gly Arg Trp Leu Ala Val Val Pro Ala Gly Thr Thr Asp Ala
 3955 3960 3965
 Leu Leu Lys Glu Leu Thr Gly Gln Gly Leu Asp Ile Val Arg Leu Glu
 3970 3975 3980
 Ile Glu Glu Ala Ser Arg Ala Gln Leu Ala Glu Gln Leu Arg Asn Val
 3985 3990 3995 4000
 Leu Ala Glu His Asp Leu Thr Gly Val Leu Ser Leu Leu Ala Leu Asp
 4005 4010 4015
 Gly Gly Pro Ala Asp Ala Ala Glu Ile Thr Ala Ser Thr Leu Ala Leu
 4020 4025 4030
 Val Gln Ala Leu Gly Asp Thr Thr Thr Ser Ala Pro Leu Trp Cys Leu
 4035 4040 4045
 Thr Ser Gly Ala Val Asn Ile Gly Ile Gln Asp Ala Val Thr Ala Pro
 4050 4055 4060
 Ala Gln Ala Ala Val Trp Gly Leu Gly Arg Ala Val Ala Leu Glu Arg
 4065 4070 4075 4080
 Leu Asp Arg Trp Gly Gly Leu Val Asp Leu Pro Ala Ala Ile Asp Ala
 4085 4090 4095
 Arg Thr Ala Gln Ala Leu Leu Gly Val Leu Asn Gly Ala Ala Gly Glu
 4100 4105 4110
 Asp Gln Leu Ala Val Arg Arg Ser Gly Val Tyr Arg Arg Arg Leu Val
 4115 4120 4125
 Arg Lys Pro Val Pro Glu Ser Ala Thr Ser Arg Trp Glu Pro Arg Gly
 4130 4135 4140
 Thr Val Leu Val Thr Gly Gly Ala Glu Gly Leu Gly Arg His Ala Ser
 4145 4150 4155 4160
 Val Trp Leu Ala Gln Ser Gly Ala Glu Arg Leu Ile Val Thr Gly Thr
 4165 4170 4175
 Asp Gly Val Asp Glu Leu Thr Ala Glu Leu Ala Glu Phe Gly Thr Thr
 4180 4185 4190
 Val Glu Phe Cys Ala Asp Thr Asp Arg Asp Ala Ile Ala Gln Leu Val
 4195 4200 4205
 Ala Asp Ser Glu Val Thr Ala Val Val His Ala Ala Asp Ile Ala Gln
 4210 4215 4220
 Thr Ser Ser Val Asp Asp Thr Gly Val Ala Asp Leu Asp Glu Val Phe
 4225 4230 4235 4240
 Ala Ala Lys Val Thr Thr Ala Val Trp Leu Asp Gln Leu Phe Glu Asp
 4245 4250 4255
 Thr Pro Leu Asp Ala Phe Val Val Phe Ser Ser Ile Ala Gly Ile Trp

4260	4265	4270
Gly Gly Gly Gly Gln Gly Pro Ala Gly Ala Ala Asn Ala Val Leu Asp 4275	4280	4285
Ala Leu Val Glu Trp Arg Arg Ala Arg Gly Leu Lys Ala Thr Ser Ile 4290	4295	4300
Ala Trp Gly Ala Leu Asp Gln Ile Gly Ile Gly Met Asp Glu Ala Ala 4305	4310	4315 4320
Leu Ala Gln Leu Arg Arg Arg Gly Val Ile Pro Met Ala Pro Pro Leu 4325	4330	4335
Ala Val Thr Ala Met Val Gln Ala Val Ala Gly Asn Glu Lys Ala Val 4340	4345	4350
Ala Val Ala Asp Met Asp Trp Ala Ala Phe Ile Pro Ala Phe Thr Ser 4355	4360	4365
Val Arg Pro Ser Pro Leu Phe Ala Asp Leu Pro Glu Ala Lys Ala Ile 4370	4375	4380
Leu Arg Ala Ala Gln Asp Asp Gly Glu Asp Gly Asp Thr Ala Ser Ser 4385	4390	4395 4400
Leu Ala Asp Ser Leu Arg Ala Val Pro Asp Ala Glu Gln Asn Arg Ile 4405	4410	4415
Leu Leu Lys Leu Val Arg Gly His Ala Ser Thr Val Leu Gly His Ser 4420	4425	4430
Gly Ala Glu Gly Ile Gly Pro Arg Gln Ala Phe Gln Glu Val Gly Phe 4435	4440	4445
Asp Ser Leu Ala Ala Val Asn Leu Arg Asn Ser Leu His Ala Ala Thr 4450	4455	4460
Gly Leu Arg Leu Pro Ala Thr Leu Ile Phe Asp Tyr Pro Thr Pro Glu 4465	4470	4475 4480
Ala Leu Val Gly Tyr Leu Arg Val Glu Leu Leu Arg Glu Ala Asp Asp 4485	4490	4495
Gly Leu Asp Gly Arg Glu Asp Asp Leu Arg Arg Val Leu Ala Ala Val 4500	4505	4510
Pro Phe Ala Arg Phe Lys Glu Ala Gly Val Leu Asp Thr Leu Leu Gly 4515	4520	4525
Leu Ala Asp Thr Gly Thr Glu Pro Gly Thr Asp Ala Glu Thr Thr Glu 4530	4535	4540
Ala Ala Pro Ala Ala Asp Asp Ala Glu Leu Ile Asp Ala Leu Asp Ile 4545	4550	4555 4560
Ser Gly Leu Val Gln Arg Ala Leu Gly Gln Thr Ser 4565	4570	

<211> 5069

<212> PRT

<213> *Amycolatopsis mediterranei*

<400> 5

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Met Ala Asn Gln Ser Trp Arg Lys Asn Met Ser Ala Pro Asn Glu Gln
 1              5              10              15

Ile Val Asp Ala Leu Arg Ala Ser Leu Lys Glu Asn Val Arg Leu Gln
      20              25              30

Gln Glu Asn Ser Ala Leu Ala Ala Ala Ala Glu Pro Val Ala Ile
      35              40              45

Val Ser Met Ala Cys Arg Tyr Ala Gly Gly Ile Arg Gly Pro Glu Asp
 50              55              60

Phe Trp Arg Val Val Ser Glu Gly Ala Asp Val Tyr Thr Gly Phe Pro
 65              70              75              80

Glu Asp Arg Gly Trp Asp Val Glu Gly Leu Tyr His Pro Asp Pro Asp
      85              90              95

Asn Pro Gly Thr Thr Tyr Val Arg Glu Gly Ala Phe Leu Gln Asp Ala
      100              105              110

Ala Gln Phe Asp Ala Gly Phe Phe Gly Ile Ser Pro Arg Glu Ala Leu
      115              120              125

Ala Met Asp Pro Gln Gln Arg Gln Leu Leu Glu Val Ser Trp Glu Thr
      130              135              140

Leu Glu Arg Ala Gly Ile Asp Pro His Ser Val Arg Gly Ser Asp Ile
      145              150              155              160

Gly Val Tyr Ala Gly Val Val His Gln Asp Tyr Ala Pro Asp Leu Ser
      165              170              175

Gly Phe Glu Gly Phe Met Ser Leu Glu Arg Ala Leu Gly Thr Ala Gly
      180              185              190

Gly Val Ala Ser Gly Arg Val Ala Tyr Thr Leu Gly Leu Glu Gly Pro
      195              200              205

Ala Val Thr Val Asp Thr Met Cys Ser Ser Ser Leu Val Ala Ile His
      210              215              220

Leu Ala Ala Gln Ala Leu Arg Arg Gly Glu Cys Ser Met Ala Leu Ala
      225              230              235              240

Gly Gly Ser Thr Val Met Ala Thr Pro Gly Gly Phe Val Gly Phe Ala
      245              250              255

Arg Gln Arg Ala Leu Ala Phe Asp Gly Arg Cys Lys Ser Tyr Ala Ala
      260              265              270

Ala Ala Asp Gly Ser Gly Trp Ala Glu Gly Val Gly Val Leu Leu Leu
      275              280              285

Glu Arg Leu Ser Val Ala Arg Glu Arg Gly His Gln Val Leu Ala Val
      290              295              300

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Ile Arg Gly Ser Ala Val Asn Gln Asp Gly Ala Ser Asn Gly Leu Thr			
305	310	315	320
Ala Pro Asn Gly Pro Ala Gln Gln Arg Val Ile Arg Lys Ala Leu Ala			
	325	330	335
Ser Ala Gly Leu Thr Pro Ser Asp Val Asp Thr Val Glu Gly His Gly			
	340	345	350
Thr Gly Thr Val Leu Gly Asp Pro Ile Glu Val Gln Ala Leu Leu Ala			
	355	360	365
Thr Tyr Gly Gln Gly Arg Asp Pro Gln Gln Pro Leu Trp Leu Gly Ser			
	370	375	380
Val Lys Ser Val Val Gly His Thr Gln Ala Ala Ser Gly Val Ala Gly			
385	390	395	400
Val Ile Lys Met Val Gln Ser Leu Arg His Gly Gln Leu Pro Ala Thr			
	405	410	415
Gln His Val Asp Ala Pro Thr Pro Gln Val Asp Trp Ser Ala Gly Ala			
	420	425	430
Ile Glu Leu Leu Ala Glu Gly Arg Glu Trp Pro Arg Asn Gly His Pro			
	435	440	445
Arg Arg Gly Gly Ile Ser Ser Phe Gly Ala Ser Gly Thr Asn Ala His			
	450	455	460
Met Ile Leu Glu Glu Ala Pro Glu Asp Glu Pro Val Thr Glu Ala Pro			
465	470	475	480
Ala Pro Thr Gly Val Val Pro Leu Val Val Ser Ala Ala Thr Ala Ala			
	485	490	495
Ser Leu Ala Ala Gln Ala Gly Arg Leu Ala Glu Val Gly Asp Val Ser			
	500	505	510
Leu Ala Asp Val Ala Gly Thr Leu Val Ser Gly Arg Ala Met Leu Ser			
	515	520	525
Glu Arg Ala Val Val Val Ala Gly Ser His Glu Glu Ala Val Thr Gly			
	530	535	540
Leu Arg Ala Leu Ala Arg Gly Glu Ser Ala Pro Gly Leu Leu Ser Gly			
545	550	555	560
Arg Gly Ser Gly Val Pro Gly Lys Val Val Trp Val Phe Pro Gly Gln			
	565	570	575
Gly Thr Gln Trp Ala Gly Met Gly Arg Glu Leu Leu Asp Ser Ser Glu			
	580	585	590
Val Phe Ala Ala Arg Ile Ala Glu Cys Glu Thr Ala Leu Gly Arg Trp			
	595	600	605
Val Asp Trp Ser Leu Thr Asp Val Leu Arg Gly Glu Ala Asp Leu Leu			
	610	615	620

Asp	Arg	Val	Asp	Val	Val	Gln	Pro	Ala	Ser	Phe	Ala	Val	Met	Val	Gly	625	630	635	640
Leu	Ala	Ala	Val	Trp	Ala	Ser	Leu	Gly	Val	Glu	Pro	Glu	Ala	Val	Val	645	650	655	
Gly	His	Ser	Gln	Gly	Glu	Ile	Ala	Ala	Ala	Cys	Val	Ser	Gly	Ala	Leu	660	665	670	
Ser	Leu	Glu	Asp	Ala	Ala	Lys	Val	Val	Ala	Leu	Arg	Ser	Gln	Ala	Ile	675	680	685	
Ala	Ala	Ser	Leu	Ala	Gly	Arg	Gly	Gly	Met	Ala	Ser	Val	Ala	Leu	Ser	690	695	700	
Glu	Glu	Asp	Ala	Thr	Ala	Arg	Leu	Glu	Pro	Trp	Ala	Gly	Arg	Val	Glu	705	710	715	720
Val	Ala	Ala	Val	Asn	Gly	Pro	Thr	Ser	Val	Val	Ile	Ala	Gly	Asp	Ala	725	730	735	
Glu	Ala	Leu	Asp	Glu	Ala	Leu	Asp	Ala	Leu	Asp	Asp	Gln	Gly	Val	Arg	740	745	750	
Ile	Arg	Arg	Val	Ala	Val	Asp	Tyr	Ala	Ser	His	Thr	Arg	His	Val	Glu	755	760	765	
Ala	Ala	Arg	Asp	Ala	Leu	Ala	Glu	Met	Leu	Gly	Gly	Ile	Arg	Ala	Gln	770	775	780	
Ala	Pro	Glu	Val	Pro	Phe	Tyr	Ser	Thr	Val	Thr	Gly	Gly	Trp	Val	Glu	785	790	795	800
Asp	Ala	Gly	Val	Leu	Asp	Gly	Gly	Tyr	Trp	Tyr	Arg	Asn	Leu	Arg	Arg	805	810	815	
Gln	Val	Arg	Phe	Gly	Pro	Ala	Val	Ala	Glu	Leu	Ile	Glu	Gln	Gly	His	820	825	830	
Arg	Val	Phe	Val	Glu	Val	Ser	Ala	His	Pro	Val	Leu	Val	Gln	Pro	Ile	835	840	845	
Asn	Glu	Leu	Val	Asp	Asp	Thr	Glu	Ala	Val	Val	Thr	Gly	Thr	Leu	Arg	850	855	860	
Arg	Glu	Asp	Gly	Gly	Leu	Arg	Arg	Leu	Leu	Ala	Ser	Ala	Ala	Glu	Leu	865	870	875	880
Phe	Val	Arg	Gly	Val	Thr	Val	Asp	Trp	Ser	Gly	Val	Leu	Pro	Pro	Ser	885	890	895	
Arg	Arg	Val	Glu	Leu	Pro	Thr	Tyr	Ala	Phe	Asp	His	Gln	His	Tyr	Trp	900	905	910	
Leu	Gln	Met	Gly	Gly	Ser	Ala	Thr	Asp	Ala	Val	Ser	Leu	Gly	Leu	Ala	915	920	925	
Gly	Ala	Asp	His	Pro	Leu	Leu	Gly	Ala	Val	Val	Pro	Leu	Pro	Gln	Ser	930	935	940	
Asp	Gly	Leu	Val	Phe	Thr	Ser	Arg	Leu	Ser	Leu	Lys	Ser	His	Pro	Trp				

945	950	955	960
Leu Ala Gly His	Ala Ile Gly Gly Val	Val Leu Ile Pro Gly Thr	Val
	965	970	975
Tyr Val Asp	Leu Ala Leu Arg Ala	Gly Asp Glu Leu Gly Phe	Gly Val
	980	985	990
Leu Glu Glu	Leu Val Ile Glu Ala	Pro Leu Val Leu Gly Glu	Arg Gly
	995	1000	1005
Gly Val Arg	Val Gln Val Ala Val	Ser Gly Pro Asn Glu Thr	Gly Ser
	1010	1015	1020
Arg Ala Val	Asp Val Phe Ser Met	Arg Glu Asp Gly Asp Glu	Trp Thr
	1025	1030	1035
Arg His Ala	Thr Gly Leu Leu Gly	Ala Ser Thr Ser Arg	Glu Pro Ser
	1045	1050	1055
Arg Phe Asp	Phe Ala Ala Trp Pro	Pro Ala Gly Ala Glu	Pro Ile Asp
	1060	1065	1070
Val Glu Asn	Phe Tyr Thr Asp Leu	Thr Glu Arg Gly Tyr	Ala Tyr Ser
	1075	1080	1085
Gly Ala Phe	Gln Gly Met Arg Ala	Val Trp Arg Arg Gly	Asp Glu Val
	1090	1095	1100
Phe Ala Glu	Val Ala Leu Pro Asp	Asp His Arg Glu Asp	Ala Gly Lys
	1105	1110	1115
Phe Gly Leu	His Pro Ala Leu Leu	Asp Ala Leu His Thr	Asn Ala
	1125	1130	1135
Phe Ala Asn	Pro Asp Asp Asp Arg	Ser Val Leu Pro Phe	Ala Trp Asn
	1140	1145	1150
Gly Leu Val	Leu His Ala Val Gly	Ala Ser Ala Leu Arg	Val Arg Val
	1155	1160	1165
Ala Pro Gly	Gly Pro Asp Ala Leu	Thr Phe Gln Ala Ala	Asp Glu Thr
	1170	1175	1180
Gly Gly Leu	Val Val Thr Met Asp	Ser Leu Val Ser Arg	Glu Val Ser
	1185	1190	1195
Ala Ala Gln	Leu Glu Thr Ala Ala	Gly Glu Glu Arg Asp	Ser Leu Phe
	1205	1210	1215
Gln Val Asp	Trp Ile Glu Val Pro	Ala Thr Glu Thr Ala	Ala Thr Glu
	1220	1225	1230
His Ala Glu	Val Leu Glu Ala Phe	Gly Glu Ala Ala Pro	Leu Glu Leu
	1235	1240	1245
Thr Ser Arg	Val Leu Glu Ala Val	Gln Ser Trp Leu Ala	Asp Ala Ala
	1250	1255	1260
Asp Glu Ala	Arg Leu Val Val Val	Thr Arg Gly Ala Val	Arg Glu Val
	1265	1270	1275
			1280

Thr Asp Pro Ala Gly Ala Ala Val Trp Gly Leu Val Arg Ala Ala Gln
 1285 1290 1295
 Ala Glu Asn Pro Gly Arg Ile Ile Leu Val Asp Thr Asp Gly Asp Val
 1300 1305 1310
 Pro Leu Gly Ala Val Leu Ala Ser Gly Glu Pro Gln Leu Ala Val Arg
 1315 1320 1325
 Gly Asn Ala Phe Ser Val Pro Arg Leu Ala Arg Ala Thr Gly Glu Val
 1330 1335 1340
 Pro Glu Ala Pro Ala Val Phe Ser Pro Glu Gly Thr Val Leu Leu Thr
 1345 1350 1355 1360
 Gly Gly Thr Gly Ser Leu Gly Gly Leu Val Ala Lys His Leu Val Ala
 1365 1370 1375
 Arg His Gly Val Arg Arg Leu Val Leu Ala Ser Arg Arg Gly Val Ala
 1380 1385 1390
 Ala Glu Asp Leu Val Thr Glu Leu Thr Glu Gln Gly Ala Thr Val Ser
 1395 1400 1405
 Val Val Ala Cys Asp Val Ser Asp Arg Asp Gln Val Ala Ala Leu Leu
 1410 1415 1420
 Ala Glu His Arg Pro Thr Gly Ile Val His Leu Ala Gly Leu Leu Asp
 1425 1430 1435 1440
 Asp Gly Val Ile Gly Ala Leu Asn Arg Glu Arg Leu Ala Gly Val Phe
 1445 1450 1455
 Ala Pro Lys Val Asp Ala Val Gln His Leu Asp Glu Leu Thr Arg Asp
 1460 1465 1470
 Leu Gly Leu Asp Ala Phe Val Val Phe Ser Ser Ala Ala Ala Leu Met
 1475 1480 1485
 Gly Ser Ala Gly Gln Gly Asn Tyr Ala Ala Ala Asn Ala Phe Leu Asp
 1490 1495 1500
 Gly Leu Met Ala Gly Arg Arg Ala Ala Gly Leu Pro Gly Val Ser Leu
 1505 1510 1515 1520
 Ala Trp Gly Leu Trp Glu Gln Ala Asp Gly Leu Thr Ala Asn Leu Ser
 1525 1530 1535
 Ala Thr Asp Gln Ala Arg Met Ser Arg Gly Gly Val Leu Pro Met Thr
 1540 1545 1550
 Pro Ala Glu Ala Leu Asp Ile Phe Asp Ile Gly Leu Ala Ala Glu Gln
 1555 1560 1565
 Ala Leu Leu Val Pro Ile Lys Leu Asp Leu Arg Thr Leu Arg Gly Gln
 1570 1575 1580
 Ala Thr Ala Gly Gly Glu Val Pro His Leu Leu Arg Gly Leu Val Arg
 1585 1590 1595 1600

Ala Ser Arg Arg Val Thr Arg Thr Ala Ala Ala Ser Gly Gly Gly Gly
 1605 1610 1615
 Leu Val His Lys Leu Ala Gly Arg Pro Ala Glu Glu Gln Glu Ala Val
 1620 1625 1630
 Leu Leu Gly Ile Val Gln Ala Glu Ala Ala Ala Val Leu Gly Phe Asn
 1635 1640 1645
 Ala Pro Glu Leu Ala Gln Gly Thr Arg Gly Phe Ser Asp Leu Gly Phe
 1650 1655 1660
 Asp Ser Leu Thr Ala Val Glu Leu Arg Asn Arg Leu Ser Ala Ala Thr
 1665 1670 1675 1680
 Gly Val Lys Leu Pro Ala Thr Leu Val Phe Asp Tyr Pro Thr Pro Val
 1685 1690 1695
 Ala Leu Ala Arg His Leu Arg Glu Glu Leu Gly Glu Thr Val Ala Gly
 1700 1705 1710
 Ala Pro Ala Thr Pro Val Thr Thr Val Ala Asp Ala Gly Glu Pro Ile
 1715 1720 1725
 Ala Ile Val Gly Met Ala Cys Arg Leu Pro Gly Gly Val Met Ser Pro
 1730 1735 1740
 Asp Asp Leu Trp Arg Met Val Ala Glu Gly Arg Asp Gly Met Ser Pro
 1745 1750 1755 1760
 Phe Pro Gly Asp Arg Gly Trp Asp Leu Asp Gly Leu Phe Asp Ser Asp
 1765 1770 1775
 Pro Glu Arg Pro Gly Thr Ala Tyr Ile Arg Gln Gly Gly Phe Leu His
 1780 1785 1790
 Glu Ala Ala Leu Phe Asp Pro Gly Phe Phe Gly Ile Ser Pro Arg Glu
 1795 1800 1805
 Ala Leu Ala Met Asp Pro Gln Gln Arg Leu Leu Leu Glu Ala Ser Trp
 1810 1815 1820
 Glu Ala Leu Glu Arg Ala Gly Ile Asp Pro Thr Lys Ala Arg Gly Asp
 1825 1830 1835 1840
 Ala Val Gly Val Phe Ser Gly Val Ser Ile His Asp Tyr Leu Glu Ser
 1845 1850 1855
 Leu Ser Asn Met Pro Ala Glu Leu Glu Gly Phe Val Thr Thr Ala Thr
 1860 1865 1870
 Ala Gly Ser Val Ala Ser Gly Arg Val Ser Tyr Thr Phe Gly Phe Glu
 1875 1880 1885
 Gly Pro Ala Val Thr Val Asp Thr Ala Cys Ser Ser Ser Leu Val Ala
 1890 1895 1900
 Ile His Leu Ala Ala Gln Ala Leu Arg Gln Gly Glu Cys Thr Met Ala
 1905 1910 1915 1920
 Leu Ala Gly Gly Val Ala Val Met Gly Ser Pro Ile Gly Val Ile Gly

1925	1930	1935
Met Ser Arg Gln Arg Gly Met Ala Glu Asp Gly Arg Val Lys Ala Phe 1940 1945 1950		
Ala Asp Gly Ala Asp Gly Thr Val Leu Ser Glu Gly Val Gly Ile Val 1955 1960 1965		
Val Leu Glu Arg Leu Ser Val Ala Arg Glu Arg Gly His Arg Val Leu 1970 1975 1980		
Ala Val Leu Arg Gly Ser Ala Val Asn Gln Asp Gly Ala Ser Asn Gly 1985 1990 1995 2000		
Leu Thr Ala Pro Asn Gly Pro Ser Gln Gln Arg Val Ile Arg Ser Ala 2005 2010 2015		
Leu Ala Gly Ala Gly Leu Gln Pro Ser Glu Val Asp Val Val Glu Ala 2020 2025 2030		
His Gly Thr Gly Thr Ala Leu Gly Glu Pro Ile Glu Ala Gln Ala Leu 2035 2040 2045		
Leu Ala Thr Tyr Gly Lys Ser Arg Glu Thr Pro Leu Trp Leu Gly Ser 2050 2055 2060		
Leu Lys Ser Asn Ile Gly His Thr Gln Ala Ala Ala Gly Val Ala Ala 2065 2070 2075 2080		
Val Ile Lys Met Val Gln Ala Leu Arg Gln Asp Thr Leu Pro Pro Thr 2085 2090 2095		
Leu His Val Gln Glu Pro Thr Lys Gln Val Asp Trp Ser Ala Gly Ala 2100 2105 2110		
Val Glu Leu Leu Thr Glu Gly Arg Glu Trp Ala Arg Asn Gly His Pro 2115 2120 2125		
Arg Arg Ala Gly Val Ser Ser Phe Gly Ile Ser Gly Thr Asn Ala His 2130 2135 2140		
Leu Ile Leu Glu Glu Ala Pro Ala Asp Asp Thr Ala Glu Ala Asp Val 2145 2150 2155 2160		
Pro Asp Ala Val Val Pro Val Val Ile Ser Ala Arg Ser Thr Gly Ser 2165 2170 2175		
Leu Ala Gly Gln Ala Gly Arg Leu Ala Ala Phe Leu Asp Gly Asp Val 2180 2185 2190		
Pro Leu Thr Arg Val Ala Gly Ala Leu Leu Ser Thr Arg Ala Thr Leu 2195 2200 2205		
Thr Asp Arg Ala Val Val Val Ala Gly Ser Ala Glu Glu Ala Arg Ala 2210 2215 2220		
Gly Leu Thr Ala Leu Ala Arg Gly Glu Ser Ala Ser Gly Leu Val Thr 2225 2230 2235 2240		
Gly Thr Ala Gly Met Pro Gly Lys Thr Val Trp Val Phe Pro Gly Gln 2245 2250 2255		

Gly Thr Gln Trp Ala Gly Met Gly Arg Glu Leu Leu Glu Ala Ser Pro
 2260 2265 2270
 Val Phe Ala Glu Arg Ile Glu Glu Cys Ala Ala Ala Leu Gln Pro Trp
 2275 2280 2285
 Ile Asp Trp Ser Leu Leu Asp Val Leu Arg Gly Glu Gly Glu Leu Asp
 2290 2295 2300
 Arg Val Asp Val Leu Gln Pro Ala Cys Phe Ala Val Met Val Gly Leu
 2305 2310 2315 2320
 Ala Ala Val Trp Ala Ser Val Gly Val Val Pro Asp Ala Val Leu Gly
 2325 2330 2335
 His Ser Gln Gly Glu Ile Ala Ala Ala Cys Val Ser Gly Ala Leu Ser
 2340 2345 2350
 Leu Glu Asp Ala Ala Lys Val Val Ala Leu Arg Ser Gln Ala Ile Ala
 2355 2360 2365
 Ala Glu Leu Ser Gly Arg Gly Gly Met Ala Ser Ile Gln Leu Ser His
 2370 2375 2380
 Asp Glu Val Ala Ala Arg Leu Ala Pro Trp Ala Gly Arg Val Glu Ile
 2385 2390 2395 2400
 Ala Ala Val Asn Gly Pro Ala Ser Val Val Ile Ala Gly Asp Ala Glu
 2405 2410 2415
 Ala Leu Thr Glu Ala Val Glu Val Leu Gly Gly Arg Arg Val Ala Val
 2420 2425 2430
 Asp Tyr Ala Ser His Thr Arg His Val Glu Asp Ile Gln Asp Thr Leu
 2435 2440 2445
 Ala Glu Thr Leu Ala Gly Ile Asp Ala Gln Ala Pro Val Val Pro Phe
 2450 2455 2460
 Tyr Ser Thr Val Ala Gly Glu Trp Ile Thr Asp Ala Gly Val Val Asp
 2465 2470 2475 2480
 Gly Gly Tyr Trp Tyr Arg Asn Leu Arg Asn Gln Val Gly Phe Gly Pro
 2485 2490 2495
 Ala Val Ala Glu Leu Ile Glu Gln Gly His Gly Val Phe Val Glu Val
 2500 2505 2510
 Ser Ala His Pro Val Leu Val Gln Pro Ile Ser Glu Leu Thr Asp Ala
 2515 2520 2525
 Val Val Thr Gly Thr Leu Arg Arg Asp Asp Gly Gly Val Arg Arg Leu
 2530 2535 2540
 Leu Thr Ser Met Ala Glu Leu Phe Val Arg Gly Val Pro Val Asp Trp
 2545 2550 2555 2560
 Ala Thr Met Ala Pro Pro Ala Arg Val Glu Leu Pro Thr Tyr Ala Phe
 2565 2570 2575

Asp His Gln His Phe Trp Leu Ser Pro Pro Ala Val Ala Asp Ala Pro
 2580 2585 2590
 Ala Leu Gly Leu Ala Gly Ala Asp His Pro Leu Leu Gly Ala Val Leu
 2595 2600 2605
 Pro Leu Pro Gln Ser Asp Gly Leu Val Phe Thr Ser Arg Leu Ser Val
 2610 2615 2620
 Arg Thr His Pro Trp Leu Ala Asp Gly Val Pro Ala Ala Ala Leu Val
 2625 2630 2635 2640
 Glu Leu Ala Val Arg Ala Gly Asp Glu Ala Gly Cys Pro Val Leu Ala
 2645 2650 2655
 Asp Leu Thr Val Glu Lys Leu Leu Val Leu Pro Glu Ser Gly Gly Leu
 2660 2665 2670
 Arg Val Gln Val Ile Val Ser Gly Glu Arg Thr Val Glu Val Tyr Ser
 2675 2680 2685
 Gln Leu Glu Gly Ala Glu Asp Trp Ile Arg Asn Ala Thr Gly His Leu
 2690 2695 2700
 Ser Ala Thr Ala Pro Ala His Glu Ala Phe Asp Phe Thr Ala Trp Pro
 2705 2710 2715 2720
 Pro Ala Gly Ala Gln Gln Val Asp Gly Leu Trp Arg Arg Gly Asp Glu
 2725 2730 2735
 Ile Phe Ala Glu Val Ala Leu Pro Glu Glu Leu Asp Ala Gly Ala Phe
 2740 2745 2750
 Gly Ile His Pro Phe Leu Leu Asp Ala Ala Val Gln Pro Val Leu Ala
 2755 2760 2765
 Asp Asp Glu Gln Pro Ala Glu Trp Arg Ser Leu Val Leu His Ala Ala
 2770 2775 2780
 Gly Ala Ser Ala Leu Arg Val Arg Leu Val Pro Gly Gly Ala Leu Gln
 2785 2790 2795 2800
 Ala Ala Asp Glu Thr Gly Gly Leu Val Leu Thr Ala Asp Ser Val Ala
 2805 2810 2815
 Gly Arg Glu Leu Ser Ala Gly Lys Thr Arg Ala Gly Ser Leu Tyr Arg
 2820 2825 2830
 Val Asp Trp Thr Glu Val Ser Ile Ala Asp Ser Ala Val Pro Ala Asn
 2835 2840 2845
 Ile Glu Val Val Glu Ala Phe Gly Glu Glu Pro Leu Glu Leu Thr Gly
 2850 2855 2860
 Arg Val Leu Glu Ala Val Gln Thr Trp Leu Val Thr Ala Ala Asp Asp
 2865 2870 2875 2880
 Ala Arg Leu Val Val Val Thr Arg Gly Ala Val Arg Glu Val Thr Asp
 2885 2890 2895
 Pro Ala Gly Ala Ala Val Trp Gly Leu Val Arg Ala Ala Gln Ala Glu

2900	2905	2910
Asn Pro Gly Arg Ile Phe Leu Ile Asp Thr Asp Gly Glu Ile Pro Ala 2915	2920	2925
Leu Thr Gly Asp Glu Pro Glu Ile Ala Val Arg Gly Gly Lys Phe Phe 2930	2935	2940
Val Pro Arg Ile Thr Arg Ala Glu Pro Ser Gly Ala Ala Val Phe Arg 2945	2950	2955 2960
Pro Asp Gly Thr Val Leu Ile Ser Gly Ala Gly Ala Leu Gly Gly Leu 2965	2970	2975
Val Ala Arg Arg Leu Val Glu Arg His Gly Val Arg Lys Leu Val Leu 2980	2985	2990
Ala Ser Arg Arg Gly Arg Asp Ala Asp Gly Val Ala Asp Leu Val Ala 2995	3000	3005
Asp Leu Ala Ala Asp Val Ser Val Val Ala Cys Asp Val Ser Asp Arg 3010	3015	3020
Ala Gln Val Ala Ala Leu Leu Asp Glu His Arg Pro Thr Ala Val Val 3025	3030	3035 3040
His Thr Ala Gly Val Ile Asp Ala Gly Val Ile Glu Thr Leu Asp Arg 3045	3050	3055
Asp Arg Leu Ala Thr Val Phe Ala Pro Lys Val Asp Ala Val Arg His 3060	3065	3070
Leu Asp Glu Leu Thr Arg Asp Arg Asp Leu Asp Ala Phe Val Val Tyr 3075	3080	3085
Ser Ser Val Ser Ala Val Phe Met Gly Ala Gly Ser Gly Ser Tyr Ala 3090	3095	3100
Ala Ala Asn Ala Phe Leu Asp Gly Leu Met Ala Asn Arg Arg Ala Ala 3105	3110	3115 3120
Gly Leu Pro Gly Leu Ser Leu Ala Trp Gly Leu Trp Asp Gln Ser Thr 3125	3130	3135
Gly Met Ala Ala Gly Thr Asp Glu Ala Thr Arg Ala Arg Met Ser Arg 3140	3145	3150
Arg Gly Gly Leu Gln Ile Met Thr Gln Ala Glu Gly Met Asp Leu Phe 3155	3160	3165
Asp Ala Ala Leu Ser Ser Ala Glu Ser Leu Leu Val Pro Ala Lys Leu 3170	3175	3180
Asp Leu Arg Gly Val Arg Ala Asp Ala Ala Ala Gly Gly Val Val Pro 3185	3190	3195 3200
His Met Leu Arg Gly Leu Val Arg Ala Gly Arg Ala Gln Ala Arg Ala 3205	3210	3215
Ala Ser Thr Val Asp Asn Gly Leu Ala Gly Arg Leu Ala Gly Leu Ala 3220	3225	3230

Pro Ala Asp Gln Leu Thr Leu Leu Leu Asp Leu Val Arg Ala Gln Val
 3235 3240 3245

Ala Ala Val Leu Gly His Ala Asp Ala Ser Ala Val Arg Val Asp Thr
 3250 3255 3260

Ala Phe Lys Asp Ala Gly Phe Asp Ser Leu Thr Ala Val Glu Leu Arg
 3265 3270 3275 3280

Asn Arg Met Arg Thr Ala Thr Gly Leu Lys Leu Pro Ala Thr Leu Val
 3285 3290 3295

Phe Asp Tyr Pro Asn Pro Gln Ala Leu Ala Arg His Leu Arg Asp Glu
 3300 3305 3310

Leu Gly Gly Ala Ala Gln Thr Pro Val Thr Thr Ala Ala Ala Lys Ala
 3315 3320 3325

Asp Leu Asp Glu Pro Ile Ala Ile Val Gly Met Ala Cys Arg Leu Pro
 3330 3335 3340

Gly Gly Val Ala Gly Pro Glu Asp Leu Trp Arg Leu Val Ala Glu Gly
 3345 3350 3355 3360

Arg Asp Ala Val Ser Ser Phe Pro Thr Asp Arg Gly Trp Asp Thr Asp
 3365 3370 3375

Ser Leu Tyr Asp Pro Asp Pro Ala Arg Pro Gly Lys Thr Tyr Thr Arg
 3380 3385 3390

His Gly Gly Phe Leu His Glu Ala Gly Leu Phe Asp Ala Gly Phe Phe
 3395 3400 3405

Gly Ile Ser Pro Arg Glu Ala Val Ala Met Asp Pro Gln Gln Arg Leu
 3410 3415 3420

Leu Leu Glu Ala Ser Trp Glu Ala Met Glu Asp Ala Gly Val Asp Pro
 3425 3430 3435 3440

Leu Ser Leu Lys Gly Asn Asp Val Gly Val Phe Thr Gly Met Phe Gly
 3445 3450 3455

Gln Gly Tyr Val Ala Pro Gly Asp Ser Val Val Thr Pro Glu Leu Glu
 3460 3465 3470

Gly Phe Ala Gly Thr Gly Gly Ser Ser Ser Val Ala Ser Gly Arg Val
 3475 3480 3485

Ser Tyr Val Phe Gly Phe Glu Gly Pro Ala Val Thr Ile Asp Ser Ala
 3490 3495 3500

Cys Ser Ser Ser Leu Val Ala Met His Leu Ala Ala Gln Ser Leu Arg
 3505 3510 3515 3520

Gln Gly Glu Cys Ser Met Ala Leu Ala Gly Gly Ala Thr Val Met Ala
 3525 3530 3535

Asn Pro Gly Ala Phe Val Glu Phe Ser Arg Gln Arg Gly Leu Ala Val
 3540 3545 3550

Asp Gly Arg Cys Lys Ala Phe Ala Ala Ala Asp Gly Thr Gly Trp
 3555 3560 3565
 Ala Glu Gly Val Gly Val Val Ile Leu Glu Arg Leu Ser Val Ala Arg
 3570 3575 3580
 Glu Arg Gly His Arg Ile Leu Ala Val Leu Arg Gly Ser Ala Val Asn
 3585 3590 3595 3600
 Gln Asp Gly Ala Ser Asn Gly Leu Thr Ala Pro Asn Gly Pro Ser Gln
 3605 3610 3615
 Gln Arg Val Ile Arg Arg Ala Leu Val Ser Ala Gly Leu Ala Pro Ser
 3620 3625 3630
 Asp Val Asp Val Val Glu Ala His Gly Thr Gly Thr Thr Leu Gly Asp
 3635 3640 3645
 Pro Ile Glu Ala Gln Ala Leu Leu Ala Thr Tyr Gly Lys Asp Arg Glu
 3650 3655 3660
 Ser Pro Leu Trp Leu Gly Ser Leu Lys Ser Asn Ile Gly His Ala Gln
 3665 3670 3675 3680
 Ala Ala Ala Gly Val Ala Gly Val Ile Lys Met Val Gln Ala Leu Arg
 3685 3690 3695
 His Glu Val Leu Pro Pro Thr Leu His Val Asp Arg Pro Thr Pro Glu
 3700 3705 3710
 Val Asp Trp Ser Ala Gly Ala Val Glu Leu Leu Thr Glu Ala Arg Glu
 3715 3720 3725
 Trp Pro Arg Asn Gly Arg Pro Arg Arg Ala Gly Val Ser Ala Phe Gly
 3730 3735 3740
 Val Ser Gly Thr Asn Ala His Leu Ile Leu Glu Glu Ala Pro Ala Glu
 3745 3750 3755 3760
 Glu Pro Val Pro Thr Pro Glu Val Pro Leu Val Pro Val Val Val Ser
 3765 3770 3775
 Ala Arg Ser Arg Ala Ser Leu Ala Gly Gln Ala Gly Arg Leu Ala Gly
 3780 3785 3790
 Phe Val Ala Gly Asp Ala Ser Leu Ala Gly Val Ala Arg Ala Leu Val
 3795 3800 3805
 Thr Asn Arg Ala Ala Leu Thr Glu Arg Ala Val Met Val Val Gly Ser
 3810 3815 3820
 Arg Glu Glu Ala Val Thr Asn Leu Glu Ala Leu Ala Arg Gly Glu Asp
 3825 3830 3835 3840
 Pro Ala Ala Val Val Thr Gly Arg Ala Gly Ser Pro Gly Lys Leu Val
 3845 3850 3855
 Trp Val Phe Pro Gly Gln Gly Ser Gln Trp Ile Gly Met Gly Arg Glu
 3860 3865 3870
 Leu Leu Asp Ser Ser Pro Val Phe Ala Glu Arg Val Ala Glu Cys Ala

3875	3880	3885
Ala Ala Leu Glu Pro Trp Ile Asp Trp Ser Leu Leu Asp Val Leu Arg 3890	3895	3900
Gly Glu Ser Asp Leu Leu Asp Arg Val Asp Val Val Gln Pro Ala Ser 3905	3910	3915 3920
Phe Ala Met Met Val Gly Leu Ala Ala Val Trp Gln Ser Val Gly Val 3925	3930	3935
Arg Pro Asp Ala Val Val Gly His Ser Gln Gly Glu Ile Ala Ala Ala 3940	3945	3950
Cys Val Ser Gly Ala Leu Ser Leu Gln Asp Ala Ala Lys Val Val Ala 3955	3960	3965
Leu Arg Ser Gln Ala Ile Ala Thr Arg Leu Ala Gly Arg Gly Gly Met 3970	3975	3980
Ala Ser Val Ala Leu Ser Glu Glu Asp Ala Thr Ala Trp Leu Ala Pro 3985	3990	3995 4000
Trp Ala Asp Arg Val Gln Val Ala Ala Val Asn Ser Pro Ala Ser Val 4005	4010	4015
Val Ile Ala Gly Glu Ala Gln Ala Leu Asp Glu Val Val Asp Ala Leu 4020	4025	4030
Ser Gly Gln Glu Val Arg Val Arg Arg Val Ala Val Asp Tyr Gly Ser 4035	4040	4045
His Thr Asn Gln Val Glu Ala Ile Glu Asp Leu Leu Ala Glu Thr Leu 4050	4055	4060
Ala Gly Ile Glu Ala Gln Ala Pro Lys Val Pro Phe Tyr Ser Thr Leu 4065	4070	4075 4080
Ile Gly Asp Trp Ile Arg Asp Ala Gly Ile Val Asp Gly Gly Tyr Trp 4085	4090	4095
Tyr Arg Asn Leu Arg Asn Gln Val Gly Phe Gly Pro Ala Val Ala Glu 4100	4105	4110
Leu Val Arg Gln Gly His Gly Val Phe Val Glu Val Ser Ala His Pro 4115	4120	4125
Val Leu Val Gln Pro Leu Ser Glu Leu Ser Asp Asp Ala Val Val Thr 4130	4135	4140
Gly Ser Leu Arg Arg Glu Asp Gly Gly Leu Arg Arg Leu Leu Thr Ser 4145	4150	4155 4160
Met Ala Glu Leu Tyr Val Gln Gly Val Pro Leu Asp Trp Thr Ala Val 4165	4170	4175
Leu Pro Arg Thr Gly Arg Val Asp Leu Pro Lys Tyr Ala Phe Asp His 4180	4185	4190
Arg His Tyr Trp Leu Arg Pro Ala Glu Ser Ala Thr Asp Ala Ala Ser 4195	4200	4205

Leu Gly Gln Ala Ala Ala Asp His Pro Leu Leu Gly Ala Val Val Glu
 4210 4215 4220
 Leu Pro Gln Ser Asp Gly Leu Val Phe Thr Ser Arg Leu Ser Val Arg
 4225 4230 4235 4240
 Thr His Pro Trp Leu Ala Asp His Ala Val Gly Gly Val Val Ile Leu
 4245 4250 4255
 Pro Gly Ser Gly Leu Ala Glu Leu Ala Val Arg Ala Gly Asp Glu Ala
 4260 4265 4270
 Gly Cys Thr Ala Leu Asp Glu Leu Ile Ile Glu Ala Pro Leu Val Val
 4275 4280 4285
 Pro Ala Gln Gly Ala Val Arg Val Gln Val Ala Leu Ser Gly Pro Asp
 4290 4295 4300
 Glu Thr Gly Ser Arg Thr Val Asp Leu Tyr Ser Gln Arg Asp Gly Gly
 4305 4310 4315 4320
 Ala Gly Thr Trp Thr Arg His Ala Thr Gly Val Leu Ser Thr Ala Pro
 4325 4330 4335
 Ala Gln Glu Pro Glu Phe Asp Phe His Ala Trp Pro Pro Ala Asp Ala
 4340 4345 4350
 Glu Arg Ile Asp Val Glu Thr Phe Tyr Thr Asp Leu Ala Glu Arg Gly
 4355 4360 4365
 Tyr Gly Tyr Gly Pro Ala Phe Gln Gly Leu Gln Ala Val Trp Arg Arg
 4370 4375 4380
 Asp Gly Asp Val Phe Ala Glu Val Ala Leu Pro Glu Asp Leu Arg Lys
 4385 4390 4395 4400
 Asp Ala Gly Arg Phe Gly Val His Pro Ala Leu Leu Asp Ala Ala Leu
 4405 4410 4415
 Gln Ala Ala Thr Ala Val Gly Gly Asp Glu Pro Gly Gln Pro Val Leu
 4420 4425 4430
 Ala Phe Ala Trp Asn Gly Leu Val Leu His Ala Ala Gly Ala Ser Ala
 4435 4440 4445
 Leu Arg Val Arg Leu Ala Pro Ser Gly Pro Asp Thr Leu Ser Val Ala
 4450 4455 4460
 Ala Ala Asp Glu Thr Gly Gly Leu Val Leu Thr Met Glu Ser Leu Val
 4465 4470 4475 4480
 Ser Arg Pro Val Ser Ala Glu Gln Leu Gly Ala Ala Ala Asp Ala Gly
 4485 4490 4495
 His Asp Ala Met Phe Arg Val Asp Trp Thr Glu Leu Pro Ala Val Pro
 4500 4505 4510
 Arg Ala Glu Leu Pro Pro Trp Val Arg Ile Asp Thr Ala Asp Asp Val
 4515 4520 4525

Ala Ala Leu Ala Glu Lys Ala Asp Ala Pro Pro Val Val Val Trp Glu
 4530 4535 4540
 Ala Ala Gly Gly Asp Pro Ala Leu Ala Val Ser Ser Arg Val Leu Glu
 4545 4550 4555 4560
 Ile Met Gln Ala Trp Leu Ala Ala Pro Ala Phe Glu Glu Ala Arg Leu
 4565 4570 4575
 Val Val Thr Thr Arg Gly Ala Val Pro Ala Gly Gly Asp His Thr Leu
 4580 4585 4590
 Thr Asp Pro Ala Ala Ala Ala Val Trp Gly Leu Val Arg Ser Ala Gln
 4595 4600 4605
 Ala Glu His Pro Asp Arg Val Val Leu Leu Asp Thr Asp Gly Glu Val
 4610 4615 4620
 Pro Leu Gly Ala Val Leu Ala Ser Gly Glu Pro Gln Leu Ala Val Arg
 4625 4630 4635 4640
 Gly Thr Thr Phe Phe Val Pro Arg Leu Ala Arg Ala Thr Arg Leu Ser
 4645 4650 4655
 Asp Ala Pro Pro Ala Phe Asp Pro Asp Gly Thr Val Leu Val Ser Gly
 4660 4665 4670
 Ala Gly Ser Leu Gly Thr Leu Val Ala Arg His Leu Val Thr Arg His
 4675 4680 4685
 Gly Val Arg Arg Val Val Leu Ala Ser Arg Gln Gly Arg Asp Ala Glu
 4690 4695 4700
 Gly Ala Gln Asp Leu Ile Thr Glu Leu Thr Gly Glu Gly Ala Asp Val
 4705 4710 4715 4720
 Ser Phe Val Ala Cys Asp Val Ser Asp Arg Asp Gln Val Ala Ala Leu
 4725 4730 4735
 Leu Ala Gly Leu Pro Asp Leu Thr Gly Val Val His Thr Ala Gly Val
 4740 4745 4750
 Phe Glu Asp Gly Val Ile Glu Ala Leu Thr Pro Asp Gln Leu Ala Asn
 4755 4760 4765
 Val Tyr Ala Ala Lys Val Thr Ala Ala Met His Leu Asp Glu Leu Thr
 4770 4775 4780
 Arg Asp Arg Asp Leu Gly Ala Phe Val Val Phe Ser Ser Val Ala Gly
 4785 4790 4795 4800
 Val Met Gly Gly Gly Gly Gln Gly Pro Tyr Ala Ala Ala Asn Ala Phe
 4805 4810 4815
 Leu Asp Ala Ala Met Ala Ser Arg Gln Ala Ala Gly Leu Pro Gly Leu
 4820 4825 4830
 Ser Leu Ala Trp Gly Leu Trp Glu Arg Ser Ser Gly Met Ala Ala His
 4835 4840 4845
 Leu Ser Glu Val Asp His Ala Arg Ala Ser Arg Asn Gly Val Leu Glu

4850	4855	4860
Leu Thr Arg Ala Glu Gly	Leu Ala Leu Phe Asp	Leu Gly Leu Arg Met
4865	4870	4875 4880
Ala Glu Ser Leu Leu Val	Pro Ile Lys Leu Asp	Leu Ala Ala Met Arg
4885	4890	4895
Ala Ser Thr Val Pro Val	Leu Phe Arg Gly Leu Val	Arg Pro Ser Arg
4900	4905	4910
Thr Gln Ala Arg Thr Ala	Ser Thr Val Asp Arg Gly	Leu Ala Gly Arg
4915	4920	4925
Leu Ala Gly Leu Pro Val	Ala Glu Arg Ala Ala Val	Leu Val Asp Leu
4930	4935	4940
Val Arg Gly Gln Val Ala	Val Val Leu Gly Tyr Asp	Gly Pro Glu Ala
4945	4950	4955 4960
Val Arg Pro Asp Thr Ala	Phe Lys Asp Thr Gly Phe	Asp Ser Leu Thr
4965	4970	4975
Ser Val Glu Leu Arg Asn	Arg Leu Arg Glu Ala Thr	Gly Leu Lys Leu
4980	4985	4990
Pro Ala Thr Leu Val Phe	Asp Tyr Pro Asn Pro Leu	Ala Val Ala Arg
4995	5000	5005
Tyr Leu Gly Ala Arg Leu	Val Pro Asp Gly Thr Ala	Asn Gly Asn Gly
5010	5015	5020
Asn Gly Asn Gly His Ser	Glu Asp Asp Arg Leu Arg	His Ala Leu Ala
5025	5030	5035 5040
Ala Ile Ala Ala Glu Asp	Ala Gly Glu Glu Arg Ser	Ile Ala Asp Leu
5045	5050	5055
Gly Val Asp Asp Leu Val	Gln Leu Ala Phe Gly Asp	Glu
5060	5065	

<210> 6
 <211> 1721
 <212> PRT
 <213> *Amycolatopsis mediterranei*

<400> 6															
Met	Ala	Cys	Arg	Leu	Pro	Gly	Gly	Val	Thr	Gly	Pro	Gly	Asp	Leu	Trp
1				5					10					15	
Arg	Leu	Val	Ala	Glu	Gly	Gly	Asp	Ala	Val	Ser	Gly	Phe	Pro	Thr	Asp
			20					25					30		
Arg	Cys	Trp	Asp	Leu	Asp	Thr	Leu	Phe	Asp	Pro	Asp	Pro	Asp	His	Ala
		35					40					45			
Gly	Thr	Ser	Tyr	Thr	Asp	Gln	Gly	Gly	Phe	Leu	His	Asp	Ala	Ala	Leu
	50					55					60				
Phe	Asp	Pro	Gly	Phe	Phe	Gly	Ile	Ser	Pro	Arg	Glu	Ala	Leu	Ala	Met

65	70	75	80
Asp Pro Gln Gln Arg Leu Leu Leu Glu Ala Ser Trp Glu Ala Leu Glu	85	90	95
Gly Val Gly Leu Asp Pro Ala Ser Leu Gln Gly Thr Asp Val Gly Val	100	105	110
Phe Thr Gly Ala Gly Gly Ser Gly Tyr Gly Gly Gly Leu Thr Gly Pro	115	120	125
Glu Met Gln Ser Phe Ala Gly Thr Gly Leu Ala Ser Ser Val Ala Ser	130	135	140
Gly Arg Val Ser Tyr Val Phe Gly Phe Glu Gly Pro Ala Val Thr Ile	145	150	155
Asp Thr Ala Cys Ser Ser Ser Leu Val Ala Met His Leu Ala Ala Gln	165	170	175
Ala Leu Arg Gln Gly Asp Cys Ser Met Ala Leu Ala Gly Gly Ala Met	180	185	190
Val Met Ser Gly Pro Asp Ser Phe Val Val Phe Ser Arg Gln Arg Gly	195	200	205
Leu Ala Thr Asp Gly Arg Cys Lys Ala Phe Ala Ser Gly Ala Asp Gly	210	215	220
Met Val Leu Ala Glu Gly Ile Ser Val Val Val Leu Glu Arg Leu Ser	225	230	235
Val Ala Arg Glu Arg Gly His Arg Val Leu Ala Val Leu Arg Gly Ser	245	250	255
Ala Val Asn Gln Asp Gly Ala Ser Asn Gly Leu Thr Ala Pro Asn Gly	260	265	270
Pro Ser Gln Gln Arg Val Ile Arg Ala Ala Leu Ala Asn Ala Gly Ile	275	280	285
Gly Pro Ser Asp Val Asp Leu Val Glu Ala His Gly Thr Gly Thr Ser	290	295	300
Leu Gly Asp Pro Ile Glu Ala Gln Ala Leu Leu Ala Thr Tyr Gly Gln	305	310	315
Asp Arg Glu Thr Pro Leu Trp Leu Gly Ser Leu Lys Ser Asn Ile Gly	325	330	335
His Thr Gln Ala Ala Ala Gly Val Ala Ser Val Ile Lys Val Val Gln	340	345	350
Ala Leu Arg His Gly Val Met Pro Pro Thr Leu His Val Asp Glu Pro	355	360	365
Ser Ser Gln Val Asp Trp Ser Glu Gly Ala Val Glu Leu Leu Thr Gly	370	375	380
Ser Arg Asp Trp Pro Arg Gly Asp Arg Pro Arg Arg Ala Gly Val Ser	385	390	395
			400

Ser Phe Gly Val Ser Gly Thr Asn Val His Leu Ile Ile Glu Glu Ala
 405 410 415
 Pro Glu Glu Pro Ala Ala Ala Val Pro Thr Ser Ala Asp Val Val Pro
 420 425 430
 Leu Val Val Ser Ala Arg Ser Thr Gly Ser Leu Ala Gly Gln Ala Asp
 435 440 445
 Arg Leu Thr Glu Val Asp Val Pro Leu Gly His Leu Ala Gly Ala Leu
 450 455 460
 Val Ala Gly Arg Ala Val Leu Glu Glu Arg Ala Val Val Val Ala Gly
 465 470 475 480
 Ser Ala Glu Glu Ala Arg Ala Gly Leu Gly Ala Leu Ala Arg Gly Glu
 485 490 495
 Ala Ala Pro Gly Val Val Thr Gly Thr Ala Gly Lys Pro Gly Lys Val
 500 505 510
 Val Trp Val Phe Pro Gly Gln Gly Thr Gln Trp Val Gly Met Gly Arg
 515 520 525
 Glu Leu Leu Asp Ala Ser Pro Val Phe Ala Glu Arg Ile Lys Glu Cys
 530 535 540
 Ala Ala Ala Leu Asp Gln Trp Thr Asp Trp Ser Leu Leu Asp Val Leu
 545 550 555 560
 Arg Gly Asp Gly Asp Leu Asp Ser Val Glu Val Leu Gln Pro Ala Cys
 565 570 575
 Phe Ala Val Met Val Gly Leu Ala Ala Val Trp Glu Ser Ala Gly Val
 580 585 590
 Arg Pro Asp Ala Val Val Gly His Ser Gln Gly Glu Ile Ala Ala Ala
 595 600 605
 Cys Val Ser Gly Ala Leu Thr Leu Asp Asp Ala Ala Lys Val Val Ala
 610 615 620
 Leu Arg Ser Gln Ala Ile Ala Ala Arg Leu Ser Gly Arg Gly Gly Met
 625 630 635 640
 Ala Ser Val Ala Leu Ser Glu Asp Glu Ala Asn Ala Arg Leu Gly Leu
 645 650 655
 Trp Asp Gly Arg Ile Glu Val Ala Ala Val Asn Gly Pro Ala Ser Val
 660 665 670
 Val Ile Ala Gly Asp Ala Gln Ala Leu Asp Glu Ala Leu Glu Val Leu
 675 680 685
 Ala Gly Asp Gly Val Arg Val Arg Gln Val Ala Val Asp Tyr Ala Ser
 690 695 700
 His Thr Arg His Val Glu Asp Ile Arg Asp Thr Leu Ala Glu Thr Leu
 705 710 715 720

Ala Gly Ile Thr	Ala Gln Ala Pro Asp Val	Pro Phe Arg Ser Thr Val
725	730	735
Thr Gly Gly Trp	Val Arg Asp Ala Asp Val Leu Asp Gly Gly Tyr Trp	
740	745	750
Tyr Arg Asn Leu Arg Asn Gln Val Arg Phe Gly Pro Ala Val Ala Glu		
755	760	765
Leu Leu Glu Gln Gly His Gly Val Phe Val Glu Val Ser Ala His Pro		
770	775	780
Val Leu Val Gln Pro Ile Ser Glu Leu Thr Asp Ala Val Val Thr Gly		
785	790	800
Thr Leu Arg Arg Asp Asp Gly Gly Leu Arg Arg Leu Leu Thr Ser Met		
805	810	815
Ala Glu Leu Phe Val Arg Gly Val Arg Val Asp Trp Ala Thr Leu Val		
820	825	830
Pro Pro Ala Arg Val Asp Leu Pro Thr Tyr Ala Phe Asp His Gln His		
835	840	845
Phe Trp Leu Arg Pro Ala Ala Gln Ala Asp Ala Val Ser Leu Gly Gln		
850	855	860
Ala Ala Ala Glu His Pro Leu Leu Gly Ala Val Val Arg Leu Pro Gln		
865	870	875
Ser Asp Gly Leu Val Phe Thr Ser Arg Leu Ser Leu Arg Thr His Pro		
885	890	895
Trp Leu Ala Asp His Thr Ile Gly Gly Val Val Leu Phe Pro Gly Thr		
900	905	910
Gly Leu Val Glu Leu Ala Val Arg Ala Gly Asp Glu Ala Gly Cys Pro		
915	920	925
Val Leu Asp Glu Leu Val Thr Glu Ala Pro Leu Val Val Pro Gly Gln		
930	935	940
Gly Gly Val Asn Val Gln Val Thr Val Ser Gly Pro Asp Gln Asn Gly		
945	950	955
Leu Arg Thr Val Asp Ile His Ser Gln Arg Asp Asp Val Trp Thr Arg		
965	970	975
His Ala Thr Gly Thr Val Ser Ala Thr Pro Ala Ser Ser Pro Gly Phe		
980	985	990
Asp Phe Thr Ala Trp Pro Pro Pro Asp Gly Gln Arg Val Glu Ile Gly		
995	1000	1005
Asp Phe Tyr Ala Asp Leu Ala Glu Arg Gly Tyr Ala Tyr Gly Pro Leu		
1010	1015	1020
Phe Gln Gly Val Arg Ala Val Trp Gln Arg Gly Glu Asp Val Phe Ala		
1025	1030	1035
Glu Val Ala Leu Pro Glu Asp Arg Arg Glu Asp Ala Ala Arg Phe Gly		

1045	1050	1055
Leu His Pro Ala Leu Leu Asp Ala Ala	Leu Gln Thr Gly Thr Ile Ala	
1060	1065	1070
Ala Ala Ala Ser Gly Gln Pro Gly Lys Ser Val Met Pro Phe Ser Trp		
1075	1080	1085
Asn Arg Leu Ala Leu His Ala Val Gly Ala Ala Gly Leu Arg Val Arg		
1090	1095	1100
Val Ala Pro Gly Gly Pro Asp Ala Leu Thr Val Glu Ala Ala Asp Glu		
1105	1110	1115
Thr Gly Ala Pro Val Leu Thr Met Asp Ser Leu Ile Leu Arg Glu Val		
1125	1130	1135
Ala Leu Asp Gln Leu Asp Thr Ala Arg Ala Gly Ser Leu Tyr Arg Val		
1140	1145	1150
Asp Trp Thr Pro Leu Pro Thr Val Asp Ser Ala Val Pro Ala Gly Arg		
1155	1160	1165
Ala Glu Val Leu Glu Ala Phe Gly Glu Glu Pro Leu Asp Leu Thr Gly		
1170	1175	1180
Arg Val Leu Ala Ala Leu Gln Ala Trp Leu Ser Asp Ala Ala Glu Glu		
1185	1190	1195
Ala Arg Leu Val Val Val Thr Arg Gly Ala Val Pro Ala Gly Asp Gly		
1205	1210	1215
Val Val Ser Asp Pro Ala Gly Ala Ala Val Trp Gly Leu Val Arg Ala		
1220	1225	1230
Ala Gln Ala Glu Asn Pro Asp Arg Phe Val Leu Leu Asp Thr Asp Gly		
1235	1240	1245
Glu Val Pro Leu Glu Ala Val Leu Ala Thr Gly Glu Pro Gln Leu Ala		
1250	1255	1260
Leu Arg Gly Thr Thr Phe Ser Val Pro Arg Leu Ala Arg Val Thr Glu		
1265	1270	1275
Pro Ala Glu Ala Pro Leu Thr Phe Arg Pro Asp Gly Thr Val Leu Val		
1285	1290	1295
Ser Gly Ala Gly Thr Leu Gly Ala Leu Ala Ala Arg Asp Leu Val Thr		
1300	1305	1310
Arg His Gly Val Arg Arg Leu Val Leu Ala Ser Arg Arg Gly Arg Ala		
1315	1320	1325
Ala Glu Gly Ile Asp Asp Leu Val Ala Glu Leu Thr Gly His Gly Ala		
1330	1335	1340
Glu Val Thr Val Ala Ala Cys Asp Val Ser Asp Arg Asp Gln Val Ala		
1345	1350	1355
Ala Leu Leu Lys Glu His Ala Leu Thr Ala Val Val His Thr Ala Gly		
1365	1370	1375

Val Phe Asp Ala Gly Val Thr Gly Ala Leu Thr Arg Glu Arg Leu Ala
 1380 1385 1390
 Lys Val Phe Ala Pro Lys Val Asp Ala Ala Asn His Leu Asp Glu Leu
 1395 1400 1405
 Thr Arg Asp Leu Asp Leu Asp Ala Phe Ile Val Tyr Ser Ser Ala Ser
 1410 1415 1420
 Ser Ile Phe Met Gly Ala Gly Ser Gly Gly Tyr Ala Ala Ala Asn Ala
 1425 1430 1435 1440
 Tyr Leu Asp Gly Leu Met Ala Ala Arg Arg Ala Ala Gly Leu Pro Gly
 1445 1450 1455
 Leu Ser Leu Ala Trp Gly Pro Trp Glu Gln Leu Thr Gly Met Ala Asp
 1460 1465 1470
 Thr Ile Asp Asp Leu Thr Leu Ala Arg Met Ser Arg Arg Glu Gly Arg
 1475 1480 1485
 Gly Gly Val Arg Ala Leu Gly Ser Ala Asp Gly Met Glu Leu Phe Asp
 1490 1495 1500
 Ala Ala Leu Ala Ala Gly Gln Ala Leu Leu Val Pro Ile Glu Leu Asp
 1505 1510 1515 1520
 Leu Arg Glu Val Arg Ala Asp Ala Ala Gly Gly Gly Thr Val Pro His
 1525 1530 1535
 Leu Leu Arg Gly Leu Val Arg Ala Gly Arg Gln Ala Ala Arg Thr Ala
 1540 1545 1550
 Ala Thr Glu Asp Gly Gly Leu Glu Arg Arg Leu Ala Gly Leu Thr Val
 1555 1560 1565
 Ala Glu Gln Glu Ala Leu Leu Leu Asp Leu Val Arg Gly Gln Val Ala
 1570 1575 1580
 Val Val Leu Gly His Ala Asp Ser Ser Gly Val Arg Ala Asp Ala Ala
 1585 1590 1595 1600
 Phe Lys Asp Ala Gly Phe Asp Ser Leu Thr Ser Val Glu Leu Arg Asn
 1605 1610 1615
 Arg Leu Arg Glu Thr Thr Gly Leu Lys Leu Pro Ala Thr Leu Val Phe
 1620 1625 1630
 Asp His Pro Asn Pro Leu Ala Leu Ala Arg His Leu Arg Ala Glu Leu
 1635 1640 1645
 Ala Val Asp Glu Ala Ser Pro Ala Asp Ala Val Leu Ala Gly Leu Ala
 1650 1655 1660
 Gly Leu Glu Ala Ala Ile Ala Ala Ala Gly Ala Pro Asp Gly Asp Arg
 1665 1670 1675 1680
 Ile Thr Ala Arg Leu Arg Glu Leu Leu Lys Ala Ala Glu Ala Ala Glu
 1685 1690 1695

Ala Arg Pro Gly Thr Ser Gly Asp Leu Asp Thr Ala Ser Asp Glu Glu
 1700 1705 1710

Leu Phe Ala Leu Val Asp Gly Leu Asp
 1715 1720

<210> 7

<211> 1688

<212> PRT

<213> *Amycolatopsis mediterranei*

<400> 7

Met Ala Cys Arg Tyr Pro Gly Gly Val Ser Ser Pro Glu Asp Leu Trp
 1 5 10 15

Arg Leu Val Ala Glu Gly Thr Asp Ala Val Ser Ala Phe Pro Gly Asp
 20 25 30

Arg Gly Trp Asp Val Asp Gly Leu Val Asp Pro Asp Pro Asp Arg Pro
 35 40 45

Gly Thr Thr Tyr Thr Asp Gln Gly Gly Phe Leu His Glu Ala Gly Leu
 50 55 60

Phe Asp Ala Gly Phe Phe Gly Ile Ser Pro Arg Glu Ala Val Ala Met
 65 70 75 80

Asp Pro Gln Gln Arg Leu Leu Leu Glu Thr Ser Trp Glu Ala Ile Glu
 85 90 95

Arg Thr Gly Thr Asp Pro Leu Ser Leu Lys Gly Ser Asp Ile Gly Val
 100 105 110

Phe Thr Gly Val Ala Ser Met Gly Tyr Gly Ala Gly Gly Gly Val Val
 115 120 125

Ala Pro Glu Leu Glu Gly Phe Val Gly Thr Gly Ala Ala Pro Cys Ile
 130 135 140

Ala Ser Gly Arg Val Ser Tyr Val Leu Gly Phe Glu Gly Pro Ala Val
 145 150 155 160

Thr Val Asp Thr Gly Cys Ser Ser Ser Leu Val Ala Met His Leu Ala
 165 170 175

Ala Gln Ala Leu Arg Arg Gly Glu Cys Ser Met Ala Leu Ala Gly Gly
 180 185 190

Ala Met Val Met Ala Gln Pro Gly Ser Phe Val Ser Phe Ser Arg Gln
 195 200 205

Arg Gly Leu Ala Leu Asp Gly Arg Cys Lys Ala Phe Ser Asp Ser Ala
 210 215 220

Asp Gly Met Gly Leu Ala Glu Gly Val Gly Val Ile Ala Leu Glu Arg
 225 230 235 240

Leu Ser Val Ala Arg Glu Arg Gly His Arg Val Leu Ala Val Leu Arg
 245 250 255

Gly Ile Ala Val Asn Gln Asp Gly Ala Ser Asn Gly Leu Thr Ala Pro
 260 265 270
 Asn Gly Pro Ser Gln Gln Arg Val Ile Arg Ala Ala Leu Ala Glu Ala
 275 280 285
 Gly Leu Ser Pro Ser Asp Val Asp Ala Val Glu Gly His Gly Thr Gly
 290 295 300
 Thr Thr Leu Gly Asp Pro Ile Glu Ala Gln Ala Leu Leu Ala Thr Tyr
 305 310 315 320
 Gly Lys Gly Arg Asp Pro Glu Lys Pro Leu Trp Leu Gly Ser Val Lys
 325 330 335
 Ser Asn Leu Gly His Thr Gln Ala Ala Ala Gly Val Ala Ser Val Ile
 340 345 350
 Lys Met Val Gln Ala Leu Arg His Gly Val Leu Pro Pro Thr Leu His
 355 360 365
 Val Asp Arg Pro Ser Thr Glu Val Asp Trp Ser Ala Gly Ala Val Ser
 370 375 380
 Leu Leu Thr Glu Ala Arg Glu Trp Pro Arg Glu Gly Arg Pro Arg Arg
 385 390 395 400
 Ala Gly Val Ser Ser Phe Gly Ile Ser Gly Thr Asn Ala His Leu Ile
 405 410 415
 Leu Glu Glu Ala Pro Glu Glu Glu Pro Pro Val Ala Glu Ala Pro Ser
 420 425 430
 Ala Gly Val Val Pro Val Val Val Ser Ala Arg Gly Ala Leu Ala Gly
 435 440 445
 Gln Ala Gly Arg Leu Ala Ala Phe Leu Glu Ala Ser Asp Glu Pro Leu
 450 455 460
 Val Thr Val Ala Gly Ala Leu Ile Cys Gly Arg Ser Arg Phe Gly Asp
 465 470 475 480
 Arg Ala Val Val Val Ala Gly Thr Arg Ala Glu Ala Thr Ala Gly Leu
 485 490 495
 Ala Ala Leu Ala Arg Gly Glu Ser Ala Ala Asp Val Val Thr Gly Thr
 500 505 510
 Val Ala Ala Ser Gly Val Pro Gly Lys Leu Val Trp Val Phe Pro Gly
 515 520 525
 Gln Gly Ser Gln Trp Val Gly Met Gly Arg Glu Leu Leu Glu Ala Ser
 530 535 540
 Pro Val Phe Ala Ala Arg Ile Ala Glu Cys Ala Ala Ala Leu Glu Pro
 545 550 555 560
 Trp Ile Asp Trp Ser Leu Leu Asp Val Leu Arg Gly Glu Gly Asp Leu
 565 570 575
 Asp Arg Val Asp Val Val Gln Pro Ala Ser Phe Ala Val Met Val Gly

580					585					590					
Leu	Ala	Ala	Val	Trp	Ser	Ser	Val	Gly	Val	Val	Pro	Asp	Ala	Val	Leu
	595						600					605			
Gly	His	Ser	Gln	Gly	Glu	Ile	Ala	Ala	Ala	Cys	Val	Ser	Gly	Ala	Leu
	610					615					620				
Ser	Leu	Gln	Asp	Ala	Ala	Lys	Val	Val	Ala	Leu	Arg	Ser	Gln	Ala	Ile
625						630					635				640
Ala	Ala	Lys	Leu	Ala	Gly	Arg	Gly	Gly	Met	Ala	Ser	Val	Ala	Leu	Ser
				645					650					655	
Glu	Glu	Asp	Ala	Val	Ala	Arg	Leu	Arg	His	Trp	Ala	Asp	Arg	Val	Glu
			660					665					670		
Val	Ala	Ala	Val	Asn	Ser	Pro	Ser	Ser	Val	Val	Ile	Ala	Gly	Asp	Ala
	675						680						685		
Glu	Ala	Leu	Asp	Gln	Ala	Leu	Glu	Ala	Leu	Thr	Gly	Gln	Asp	Ile	Arg
	690					695					700				
Val	Arg	Arg	Val	Ala	Val	Asp	Tyr	Ala	Ser	His	Thr	Arg	His	Val	Glu
705						710					715				720
Asp	Ile	Gln	Glu	Pro	Leu	Ala	Glu	Ala	Leu	Ala	Gly	Ile	Glu	Ala	His
				725					730					735	
Ala	Pro	Thr	Leu	Pro	Phe	Phe	Ser	Thr	Leu	Thr	Gly	Asp	Trp	Ile	Arg
			740					745					750		
Glu	Ala	Gly	Val	Val	Asp	Gly	Gly	Tyr	Trp	Tyr	Arg	Asn	Leu	Arg	Asn
	755						760					765			
Gln	Val	Gly	Phe	Gly	Pro	Ala	Val	Ala	Glu	Leu	Leu	Gly	Leu	Gly	His
	770					775					780				
Arg	Val	Phe	Val	Glu	Val	Ser	Ala	His	Pro	Val	Leu	Val	Gln	Ala	Ile
785						790					795				800
Ser	Ala	Ile	Ala	Asp	Asp	Thr	Asp	Ala	Val	Val	Thr	Gly	Ser	Leu	Arg
				805					810					815	
Arg	Glu	Glu	Gly	Gly	Leu	Arg	Arg	Leu	Leu	Thr	Ser	Met	Ala	Glu	Leu
			820					825					830		
Phe	Val	Arg	Gly	Val	Asp	Val	Asp	Trp	Ala	Thr	Met	Val	Pro	Pro	Ala
	835						840					845			
Arg	Val	Asp	Leu	Pro	Thr	Tyr	Ala	Phe	Asp	His	Gln	His	Tyr	Trp	Leu
	850					855					860				
Arg	Tyr	Val	Glu	Thr	Ala	Thr	Asp	Ala	Ala	Gly	Pro	Val	Val	Arg	Leu
865						870					875				880
Pro	Gln	Thr	Gly	Gly	Leu	Val	Phe	Thr	Thr	Glu	Trp	Ser	Leu	Lys	Ser
				885					890					895	
Gln	Pro	Trp	Leu	Ala	Glu	His	Thr	Leu	Glu	Asp	Leu	Val	Val	Val	Pro
			900					905						910	

Gly Ala Ala Leu Val Glu Leu Ala Val Arg Ala Gly Asp Glu Ala Gly
 915 920 925
 Thr Pro Val Leu Asp Glu Leu Val Ile Glu Thr Pro Leu Val Val Pro
 930 935 940
 Glu Arg Gly Ala Ile Arg Val Gln Val Thr Val Ser Gly Pro Asp Asp
 945 950 955 960
 Gly Thr Arg Thr Leu Glu Val His Ser Gln Pro Glu Asp Ala Thr Asp
 965 970 975
 Glu Trp Thr Arg His Ala Thr Gly Thr Leu Ser Ala Thr Pro Asp Glu
 980 985 990
 Ser Ser Gly Phe Asp Phe Thr Ala Trp Pro Pro Pro Gly Ala Arg Gln
 995 1000 1005
 Leu Asp Gly Val Pro Ala Ile Trp Arg Ala Gly Asp Glu Ile Phe Ala
 1010 1015 1020
 Glu Val Ser Leu Pro Asp Asp Ala Asp Ala Glu Ala Phe Gly Ile His
 1025 1030 1035 1040
 Pro Ala Leu Leu Asp Ala Ala Leu His Pro Ala Leu Pro Gly Asp Asp
 1045 1050 1055
 Gly Leu Thr Gln Pro Met Glu Trp Arg Gly Leu Thr Leu His Ala Ala
 1060 1065 1070
 Gly Ala Ser Thr Leu Arg Val Arg Leu Val Pro Gly Gly Phe Leu Glu
 1075 1080 1085
 Ala Ala Asp Gly Ala Gly Ser Leu Val Val Thr Ala Lys Glu Val Ala
 1090 1095 1100
 Leu Arg Pro Val Thr Ile Ala Arg Ser Arg Thr Thr Thr Arg Asp Ser
 1105 1110 1115 1120
 Leu Phe Gln Leu Asn Trp Ile Glu Leu Pro Glu Ser Gly Val Val Ala
 1125 1130 1135
 Ala Ala Asp Asp Thr Glu Val Leu Glu Val Pro Ala Gly Asp Ser Pro
 1140 1145 1150
 Leu Ala Ala Thr Ser Arg Val Leu Glu Arg Leu Gln Thr Trp Leu Thr
 1155 1160 1165
 Glu Pro Glu Ala Glu Gln Leu Val Val Val Thr Arg Gly Ala Val Pro
 1170 1175 1180
 Ala Gly Asp Thr Pro Val Thr Asp Pro Ala Ala Ala Val Trp Gly
 1185 1190 1195 1200
 Leu Val Arg Ser Ala Gln Ala Glu Asn Pro Asp Arg Ile Val Leu Leu
 1205 1210 1215
 Asp Thr Asp Gly Glu Val Pro Leu Gly Ala Val Leu Ala Gly Gly Glu
 1220 1225 1230

Pro Gln Val Ala Val Arg Gly Thr Ala Leu Tyr Val Pro Arg Leu Ala
 1235 1240 1245
 Arg Ala Asp Ala Ala Pro Val Ser Gly Leu His Gly Thr Val Leu Val
 1250 1255 1260
 Ser Gly Ala Gly Val Leu Gly Glu Ile Val Ala Arg His Leu Val Thr
 1265 1270 1275 1280
 Arg His Gly Val Arg Lys Leu Val Leu Ala Ser Arg Arg Gly Leu Asp
 1285 1290 1295
 Ala Asp Gly Ala Lys Asp Leu Val Thr Asp Leu Thr Gly Glu Gly Ala
 1300 1305 1310
 Asp Val Ser Val Val Ala Cys Asp Leu Ala Asp Arg Asn Gln Val Ala
 1315 1320 1325
 Ala Leu Leu Ala Asp His Arg Pro Ala Ser Val Ile His Thr Ala Gly
 1330 1335 1340
 Val Leu Asp Asp Gly Val Ile Gly Thr Leu Thr Pro Glu Arg Leu Ala
 1345 1350 1355 1360
 Lys Val Phe Ala Pro Lys Val Asp Ala Val Arg His Leu Asp Glu Leu
 1365 1370 1375
 Thr Arg Asp Leu Asp Leu Asp Ala Phe Val Val Phe Ser Ser Gly Ser
 1380 1385 1390
 Gly Val Phe Gly Ser Pro Gly Gln Gly Asn Tyr Ala Ala Ala Asn Ala
 1395 1400 1405
 Phe Leu Asp Ala Ala Met Ala Ser Arg Arg Ala Ala Gly Leu Pro Gly
 1410 1415 1420
 Leu Ser Leu Ala Trp Gly Leu Trp Glu Gln Ala Thr Gly Met Thr Ala
 1425 1430 1435 1440
 His Leu Gly Gly Thr Asp Gln Ala Arg Met Ser Arg Gly Gly Val Arg
 1445 1450 1455
 Pro Ile Thr Ala Glu Glu Gly Met Ala Leu Phe Asp Thr Ala Leu Gly
 1460 1465 1470
 Ala Gln Pro Ala Leu Leu Val Pro Val Lys Leu Asp Leu Arg Glu Val
 1475 1480 1485
 Arg Ala Gly Gly Ala Val Pro His Leu Leu Arg Gly Leu Val Arg Ala
 1490 1495 1500
 Gly Arg Arg Gln Ala Gln Ala Ala Ser Thr Val Asp Asn Gln Leu Leu
 1505 1510 1515 1520
 Gly Arg Leu Ala Gly Leu Gly Ala Pro Glu Gln Glu Ala Leu Leu Val
 1525 1530 1535
 Asp Leu Val Arg Gly Gln Val Ala Ala Val Leu Gly His Ala Gly Pro
 1540 1545 1550
 Asp Ala Val Arg Ala Asp Thr Ala Phe Lys Asp Ala Gly Phe Asp Ser

1555	1560	1565
Leu Thr Ser Val Asp Leu Arg Asn Arg Leu Arg Glu Ser Thr Gly Leu 1570	1575	1580
Lys Leu Pro Ala Thr Leu Ala Phe Asp Tyr Pro Thr Pro Leu Val Leu 1585	1590	1595 1600
Ala Arg His Leu Arg Asp Glu Leu Gly Ala Gly Asp Asp Ala Leu Ser 1605	1610	1615
Val Val His Ala Arg Leu Glu Asp Val Glu Ala Leu Leu Gly Gly Leu 1620	1625	1630
Arg Leu Asp Glu Ser Thr Lys Thr Gly Leu Thr Leu Arg Leu Gln Gly 1635	1640	1645
Leu Val Ala Arg Cys Asn Gly Val Asn Asp Gln Thr Gly Gly Glu Thr 1650	1655	1660
Leu Ala Asp Arg Leu Glu Ala Ala Ser Ala Asp Glu Val Leu Asp Phe 1665	1670	1675 1680
Ile Asp Glu Glu Leu Gly Leu Thr 1685		

<210> 8
 <211> 3413
 <212> PRT
 <213> Amycolatopsis mediterranei

<400> 8
Met Ala Thr Asp Glu Lys Leu Leu Lys Tyr Leu Lys Arg Val Thr Ala 1 5 10 15
Glu Leu His Ser Leu Arg Lys Gln Gly Ala Arg His Ala Asp Glu Pro 20 25 30
Leu Ala Val Val Gly Met Ala Cys Arg Phe Pro Gly Gly Val Ser Ser 35 40 45
Pro Glu Asp Leu Trp Gln Leu Val Ala Gly Gly Val Asp Ala Leu Ser 50 55 60
Asp Phe Pro Asp Asp Arg Gly Trp Glu Leu Asp Gly Leu Phe Asp Pro 65 70 75 80
Asp Pro Asp His Pro Gly Thr Ser Tyr Thr Ser Gln Gly Gly Phe Leu 85 90 95
Arg Gly Ala Gly Leu Phe Asp Ala Gly Leu Phe Gly Ile Ser Pro Arg 100 105 110
Glu Ala Leu Val Met Asp Pro Gln Gln Arg Val Leu Leu Glu Thr Ser 115 120 125
Trp Glu Ala Leu Glu Asp Ala Gly Val Asp Pro Leu Ser Leu Lys Gly 130 135 140
Ser Asp Val Gly Val Phe Ser Gly Val Phe Thr Gln Gly Tyr Gly Ala

145	150	155	160
Gly Ala Ile Thr Pro Asp Leu Glu Ala Phe Ala Gly Ile Gly Ala Ala	165	170	175
Ser Ser Val Ala Ser Gly Arg Val Ser Tyr Val Phe Gly Leu Glu Gly	180	185	190
Pro Ala Val Thr Ile Asp Thr Ala Cys Ser Ser Ser Leu Val Ala Ile	195	200	205
His Leu Ala Ala Gln Ala Leu Arg Ala Gly Glu Cys Ser Met Ala Leu	210	215	220
Ala Gly Gly Ala Thr Val Met Pro Thr Pro Gly Thr Phe Val Ala Phe	225	230	235
Ser Arg Gln Arg Val Leu Ala Ala Asp Gly Arg Ser Lys Ala Phe Ser	245	250	255
Ser Thr Ala Asp Gly Thr Gly Trp Ala Glu Gly Ala Gly Val Leu Val	260	265	270
Leu Glu Arg Leu Ser Val Ala Gln Glu Arg Gly His Arg Ile Leu Ala	275	280	285
Val Leu Arg Gly Ser Ala Val Asn Gln Asp Gly Ala Ser Asn Gly Leu	290	295	300
Thr Ala Pro Asn Gly Pro Ser Gln Gln Arg Val Ile Arg Lys Ala Leu	305	310	315
Ala Gly Ala Gly Leu Val Ala Ser Asp Val Asp Val Val Glu Ala His	325	330	335
Gly Thr Gly Thr Ala Leu Gly Asp Pro Ile Glu Ala Gln Ala Leu Leu	340	345	350
Ala Thr Tyr Gly Gln Gly Arg Glu Arg Pro Leu Trp Leu Gly Ser Val	355	360	365
Lys Ser Asn Phe Gly His Thr Gln Ala Ala Ala Gly Val Ala Gly Val	370	375	380
Ile Lys Met Val Gln Ala Leu Arg His Gly Ala Met Pro Pro Thr Leu	385	390	395
His Val Ala Glu Pro Thr Pro Glu Val Asp Trp Ser Ala Gly Ala Val	405	410	415
Glu Leu Leu Thr Glu Pro Arg Glu Trp Pro Ala Gly Asp Arg Pro Arg	420	425	430
Arg Ala Gly Val Ser Ala Phe Gly Ile Ser Gly Thr Asn Ala His Leu	435	440	445
Ile Leu Glu Glu Ala Pro Pro Ala Asp Ala Val Ala Glu Glu Pro Glu	450	455	460
Phe Lys Gly Pro Val Pro Leu Val Val Ser Ala Gly Ser Pro Thr Ser	465	470	475
			480

Leu Ala Ala Gln Ala Gly Arg Leu Ala Glu Val Leu Ala Ser Gly Gly
 485 490 495
 Val Ser Arg Ala Arg Leu Ala Ser Gly Leu Leu Ser Gly Arg Ala Leu
 500 505 510
 Leu Gly Asp Arg Ala Val Val Val Ala Gly Thr Asp Glu Asp Ala Val
 515 520 525
 Ala Gly Leu Arg Ala Leu Ala Arg Gly Asp Arg Ala Pro Gly Val Leu
 530 535 540
 Thr Gly Ser Ala Lys His Gly Lys Val Val Tyr Val Phe Pro Gly Gln
 545 550 555 560
 Gly Ser Gln Arg Leu Gly Met Gly Arg Glu Leu Tyr Asp Arg Tyr Pro
 565 570 575
 Val Phe Ala Thr Ala Phe Asp Glu Ala Cys Glu Gln Leu Asp Val Cys
 580 585 590
 Leu Ala Gly Arg Ala Gly His Arg Val Arg Asp Val Val Leu Gly Glu
 595 600 605
 Val Pro Ala Glu Thr Gly Leu Leu Asn Gln Thr Val Phe Thr Gln Ala
 610 615 620
 Gly Leu Phe Ala Val Glu Ser Ala Leu Phe Arg Leu Ala Glu Ser Trp
 625 630 635 640
 Gly Val Arg Pro Asp Val Val Leu Gly His Ser Ile Gly Glu Ile Thr
 645 650 655
 Ala Ala Tyr Ala Ala Gly Val Phe Ser Leu Pro Asp Ala Ala Arg Ile
 660 665 670
 Val Ala Ala Arg Gly Arg Leu Met Gln Ala Leu Ala Pro Gly Gly Ala
 675 680 685
 Met Val Ala Val Ala Ala Ser Glu Ala Glu Val Ala Glu Leu Leu Gly
 690 695 700
 Asp Gly Val Glu Leu Ala Ala Val Asn Gly Pro Ser Ala Val Val Leu
 705 710 715 720
 Ser Gly Asp Ala Asp Ala Val Val Ala Ala Ala Arg Met Arg Glu
 725 730 735
 Arg Gly His Lys Thr Lys Gln Leu Lys Val Ser His Ala Phe His Ser
 740 745 750
 Ala Arg Met Ala Pro Met Leu Ala Glu Phe Ala Ala Glu Leu Ala Gly
 755 760 765
 Val Thr Trp Arg Glu Pro Glu Ile Pro Val Val Ser Asn Val Thr Gly
 770 775 780
 Arg Phe Ala Glu Pro Gly Glu Leu Thr Glu Pro Gly Tyr Trp Ala Glu
 785 790 795 800

His Val Arg Arg Pro Val Arg Phe Ala Glu Gly Val Ala Ala Ala Thr
 805 810 815
 Glu Ser Gly Gly Ser Leu Phe Val Glu Leu Gly Pro Gly Ala Ala Leu
 820 825 830
 Thr Ala Leu Val Glu Glu Thr Ala Glu Val Thr Cys Val Ala Ala Leu
 835 840 845
 Arg Asp Asp Arg Pro Glu Val Thr Ala Leu Ile Thr Ala Val Ala Glu
 850 855 860
 Leu Phe Val Arg Gly Val Ala Val Asp Trp Pro Ala Leu Leu Pro Pro
 865 870 875 880
 Val Thr Gly Phe Val Asp Leu Pro Lys Tyr Ala Phe Asp Gln Gln His
 885 890 895
 Tyr Trp Leu Gln Pro Ala Ala Gln Ala Thr Asp Ala Ala Ser Leu Gly
 900 905 910
 Gln Val Ala Ala Asp His Pro Leu Leu Gly Ala Val Val Arg Leu Pro
 915 920 925
 Gln Ser Asp Gly Leu Val Phe Thr Ser Arg Leu Ser Leu Lys Ser His
 930 935 940
 Pro Trp Leu Ala Asp His Val Ile Gly Gly Val Val Leu Val Ala Gly
 945 950 955 960
 Thr Gly Leu Val Glu Leu Ala Val Arg Ala Gly Asp Glu Ala Gly Cys
 965 970 975
 Pro Val Leu Glu Glu Leu Val Ile Glu Ala Pro Leu Val Val Pro Asp
 980 985 990
 His Gly Gly Val Arg Ile Gln Val Val Val Gly Ala Pro Gly Glu Thr
 995 1000 1005
 Gly Ser Arg Ala Val Glu Val Tyr Ser Leu Arg Glu Asp Ala Gly Ala
 1010 1015 1020
 Glu Val Trp Ala Arg His Ala Thr Gly Phe Leu Ala Ala Thr Pro Ser
 1025 1030 1035 1040
 Gln His Lys Pro Phe Asp Phe Thr Ala Trp Pro Pro Pro Gly Val Glu
 1045 1050 1055
 Arg Val Asp Val Glu Asp Phe Tyr Asp Gly Leu Val Asp Arg Gly Tyr
 1060 1065 1070
 Ala Tyr Gly Pro Ser Phe Arg Gly Leu Arg Ala Val Trp Arg Arg Gly
 1075 1080 1085
 Asp Glu Val Phe Ala Glu Val Ala Leu Ala Glu Asp Asp Arg Ala Asp
 1090 1095 1100
 Ala Ala Arg Phe Gly Ile His Pro Gly Leu Leu Asp Ala Ala Leu His
 1105 1110 1115 1120
 Ala Gly Met Ala Gly Ala Thr Thr Thr Glu Glu Pro Gly Arg Pro Val

1125	1130	1135
Leu Pro Phe Ala Trp Asn Gly Leu Val	Leu His Ala Ala Gly Ala Ser	
1140	1145	1150
Ala Leu Arg Val Arg Leu Ala Pro Ser Gly Pro Asp Ala Leu Ser Val		
1155	1160	1165
Glu Ala Ala Asp Glu Ala Gly Gly Leu Val Val Thr Ala Asp Ser Leu		
1170	1175	1180
Val Ser Arg Pro Val Ser Ala Glu Gln Leu Gly Ala Ala Ala Asn His		
1185	1190	1195 1200
Asp Ala Leu Phe Arg Val Glu Trp Thr Glu Ile Ser Ser Ala Gly Asp		
1205	1210	1215
Val Pro Ala Asp His Val Glu Val Leu Glu Ala Val Gly Glu Asp Pro		
1220	1225	1230
Leu Glu Leu Thr Gly Arg Val Leu Glu Ala Val Gln Thr Trp Leu Ala		
1235	1240	1245
Asp Ala Ala Asp Asp Ala Arg Leu Val Val Val Thr Arg Gly Ala Val		
1250	1255	1260
His Glu Val Thr Asp Pro Ala Gly Ala Ala Val Trp Gly Leu Ile Arg		
1265	1270	1275 1280
Ala Ala Gln Ala Glu Asn Pro Asp Arg Ile Val Leu Leu Asp Thr Asp		
1285	1290	1295
Gly Glu Val Pro Leu Gly Arg Val Leu Ala Thr Gly Glu Pro Gln Thr		
1300	1305	1310
Ala Val Arg Gly Ala Thr Leu Phe Ala Pro Arg Leu Ala Arg Ala Glu		
1315	1320	1325
Ala Ala Glu Ala Pro Ala Val Thr Gly Gly Thr Val Leu Ile Ser Gly		
1330	1335	1340
Ala Gly Ser Leu Gly Ala Leu Thr Ala Arg His Leu Val Ala Arg His		
1345	1350	1355 1360
Gly Val Arg Arg Leu Val Leu Val Ser Arg Arg Gly Pro Asp Ala Asp		
1365	1370	1375
Gly Met Ala Glu Leu Thr Ala Glu Leu Ile Ala Gln Gly Ala Glu Val		
1380	1385	1390
Ala Val Val Ala Cys Asp Leu Ala Asp Arg Asp Gln Val Arg Val Leu		
1395	1400	1405
Leu Ala Glu His Arg Pro Asn Ala Val Val His Thr Ala Gly Val Leu		
1410	1415	1420
Asp Asp Gly Val Phe Glu Ser Leu Thr Arg Glu Arg Leu Ala Lys Val		
1425	1430	1435 1440
Phe Ala Pro Lys Val Thr Ala Ala Asn His Leu Asp Glu Leu Thr Arg		
1445	1450	1455

Glu Leu Asp Leu Arg Ala Phe Val Val Phe Ser Ser Ala Ser Gly Val
 1460 1465 1470
 Phe Gly Ser Ala Gly Gln Gly Asn Tyr Ala Ala Ala Asn Ala Tyr Leu
 1475 1480 1485
 Asp Ala Val Val Ala Asn Arg Arg Ala Ala Gly Leu Pro Gly Thr Ser
 1490 1495 1500
 Leu Ala Trp Gly Leu Trp Glu Gln Thr Asp Gly Met Thr Ala His Leu
 1505 1510 1515 1520
 Gly Asp Ala Asp Gln Ala Arg Ala Ser Arg Gly Gly Val Leu Ala Ile
 1525 1530 1535
 Ser Pro Ala Glu Gly Met Glu Leu Phe Asp Ala Ala Pro Asp Gly Leu
 1540 1545 1550
 Val Val Pro Val Lys Leu Asp Leu Arg Lys Thr Arg Ala Gly Gly Thr
 1555 1560 1565
 Val Pro His Leu Leu Arg Gly Leu Val Arg Pro Gly Arg Gln Gln Ala
 1570 1575 1580
 Arg Pro Ala Ser Thr Val Asp Asn Gly Leu Ala Gly Arg Leu Ala Gly
 1585 1590 1595 1600
 Leu Ala Pro Ala Glu Gln Glu Ala Leu Leu Leu Asp Val Val Arg Thr
 1605 1610 1615
 Gln Val Ala Leu Val Leu Gly His Ala Gly Pro Glu Ala Val Arg Ala
 1620 1625 1630
 Asp Thr Ala Phe Lys Asp Thr Gly Phe Asp Ser Leu Thr Ser Val Glu
 1635 1640 1645
 Leu Arg Asn Arg Leu Arg Glu Ala Ser Gly Leu Lys Leu Pro Ala Thr
 1650 1655 1660
 Leu Val Phe Asp Tyr Pro Thr Pro Val Ala Leu Ala Arg Tyr Leu Arg
 1665 1670 1675 1680
 Asp Glu Leu Gly Asp Thr Val Ala Thr Thr Pro Val Ala Thr Ala Ala
 1685 1690 1695
 Ala Ala Asp Ala Gly Glu Pro Ile Ala Ile Val Gly Met Ala Cys Arg
 1700 1705 1710
 Leu Pro Gly Gly Val Thr Asp Pro Glu Gly Leu Trp Arg Leu Val Arg
 1715 1720 1725
 Asp Gly Leu Glu Gly Leu Ser Pro Phe Pro Glu Asp Arg Gly Trp Asp
 1730 1735 1740
 Leu Glu Asn Leu Phe Asp Asp Asp Pro Asp Arg Ser Gly Thr Thr Tyr
 1745 1750 1755 1760
 Thr Ser Arg Gly Gly Phe Leu Asp Gly Ala Gly Leu Phe Asp Ala Gly
 1765 1770 1775

Phe Phe Gly Ile Ser Pro Arg Glu Ala Leu Ala Met Asp Pro Gln Gln
 1780 1785 1790
 Arg Leu Leu Leu Glu Ala Ala Trp Glu Ala Leu Glu Gly Thr Gly Val
 1795 1800 1805
 Asp Pro Gly Ser Leu Lys Gly Ala Asp Val Gly Val Phe Ala Gly Val
 1810 1815 1820
 Ser Asn Gln Gly Tyr Gly Met Gly Ala Asp Pro Ala Glu Leu Ala Gly
 1825 1830 1835 1840
 Tyr Ala Ser Thr Ala Gly Ala Ser Ser Val Val Ser Gly Arg Val Ser
 1845 1850 1855
 Tyr Val Phe Gly Phe Glu Gly Pro Ala Val Thr Ile Asp Thr Ala Cys
 1860 1865 1870
 Ser Ser Ser Leu Val Ala Met His Leu Ala Gly Gln Ala Leu Arg Gln
 1875 1880 1885
 Gly Glu Cys Ser Met Ala Leu Ala Gly Gly Val Thr Val Met Gly Thr
 1890 1895 1900
 Pro Gly Thr Phe Val Glu Phe Ala Lys Gln Arg Gly Leu Ala Gly Asp
 1905 1910 1915 1920
 Gly Arg Cys Lys Ala Tyr Ala Glu Gly Ala Asp Gly Thr Gly Trp Ala
 1925 1930 1935
 Glu Gly Val Gly Val Val Val Leu Glu Arg Leu Ser Val Ala Arg Glu
 1940 1945 1950
 Arg Gly His Arg Val Leu Ala Val Leu Arg Gly Ser Ala Val Asn Ser
 1955 1960 1965
 Asp Gly Ala Ser Asn Gly Leu Thr Ala Pro Asn Gly Pro Ser Gln Gln
 1970 1975 1980
 Arg Val Ile Arg Arg Ala Leu Ala Gly Ala Gly Leu Glu Pro Ser Asp
 1985 1990 1995 2000
 Val Asp Ile Val Glu Gly His Gly Thr Gly Thr Ala Leu Gly Asp Pro
 2005 2010 2015
 Ile Glu Ala Gln Ala Leu Leu Ala Thr Tyr Gly Lys Asp Arg Asp Pro
 2020 2025 2030
 Glu Thr Pro Leu Trp Leu Gly Ser Val Lys Ser Asn Phe Gly His Thr
 2035 2040 2045
 Gln Ser Ala Ala Gly Val Ala Gly Val Ile Lys Met Val Gln Ala Leu
 2050 2055 2060
 Arg His Gly Val Met Pro Pro Thr Leu His Val Asp Arg Pro Thr Ser
 2065 2070 2075 2080
 Gln Val Asp Trp Ser Ala Gly Ala Val Glu Val Leu Thr Glu Ala Arg
 2085 2090 2095
 Glu Trp Pro Arg Asn Gly Arg Pro Arg Arg Ala Gly Val Ser Ser Phe

2100	2105	2110
Gly Ile Ser Gly Thr Asn Ala His Leu Ile Ile Glu Glu Ala Pro Ala 2115 2120 2125		
Glu Pro Gln Leu Ala Gly Pro Pro Pro Asp Gly Gly Val Val Pro Leu 2130 2135 2140		
Val Val Ser Ala Arg Ser Pro Gly Ala Leu Ala Gly Gln Ala Arg Arg 2145 2150 2155 2160		
Leu Ala Thr Phe Leu Gly Asp Gly Pro Leu Ser Asp Val Ala Gly Ala 2165 2170 2175		
Leu Thr Ser Arg Ala Leu Phe Gly Glu Arg Ala Val Val Val Ala Asp 2180 2185 2190		
Ser Ala Glu Glu Ala Arg Ala Gly Leu Gly Ala Leu Ala Arg Gly Glu 2195 2200 2205		
Asp Ala Pro Gly Leu Val Arg Gly Arg Val Pro Ala Ser Gly Leu Pro 2210 2215 2220		
Gly Lys Leu Val Trp Val Phe Pro Gly Gln Gly Thr Gln Trp Val Gly 2225 2230 2235 2240		
Met Gly Arg Glu Leu Leu Glu Glu Ser Pro Val Phe Ala Glu Arg Ile 2245 2250 2255		
Ala Glu Cys Ala Ala Ala Leu Glu Pro Trp Ile Gly Trp Ser Leu Phe 2260 2265 2270		
Asp Val Leu Arg Gly Asp Gly Asp Leu Asp Arg Val Asp Val Leu Gln 2275 2280 2285		
Pro Ala Cys Phe Ala Val Met Val Gly Leu Ala Ala Val Trp Ser Ser 2290 2295 2300		
Ala Gly Val Val Pro Asp Ala Val Leu Gly His Ser Gln Gly Glu Ile 2305 2310 2315 2320		
Ala Ala Ala Cys Val Ser Gly Ala Leu Ser Leu Glu Asp Ala Ala Lys 2325 2330 2335		
Val Val Ala Leu Arg Ser Gln Ala Ile Ala Ala Lys Leu Ser Gly Arg 2340 2345 2350		
Gly Gly Met Ala Ser Val Ala Leu Gly Glu Ala Asp Val Val Ser Arg 2355 2360 2365		
Leu Ala Asp Gly Val Glu Val Ala Ala Val Asn Gly Pro Ala Ser Val 2370 2375 2380		
Val Ile Ala Gly Asp Ala Gln Ala Leu Asp Glu Thr Leu Glu Ala Leu 2385 2390 2395 2400		
Ser Gly Ala Gly Ile Arg Ala Arg Arg Val Ala Val Asp Tyr Ala Ser 2405 2410 2415		
His Thr Arg His Val Glu Asp Ile Glu Asp Thr Leu Ala Glu Ala Leu 2420 2425 2430		

Ala Gly Ile Asp Ala Arg Ala Pro Leu Val Pro Phe Leu Ser Thr Leu
 2435 2440 2445
 Thr Gly Glu Trp Ile Arg Asp Glu Gly Val Val Asp Gly Gly Tyr Trp
 2450 2455 2460
 Tyr Arg Asn Leu Arg Gly Arg Val Arg Phe Gly Pro Ala Val Glu Ala
 2465 2470 2475 2480
 Leu Leu Ala Gln Gly His Gly Val Phe Val Glu Leu Ser Ala His Pro
 2485 2490 2495
 Val Leu Val Gln Pro Ile Thr Glu Leu Thr Asp Glu Thr Ala Ala Val
 2500 2505 2510
 Val Thr Gly Ser Leu Arg Arg Asp Asp Gly Gly Leu Arg Arg Leu Leu
 2515 2520 2525
 Thr Ser Met Ala Glu Leu Phe Val Arg Gly Val Glu Val Asp Trp Thr
 2530 2535 2540
 Ser Leu Val Pro Pro Ala Arg Ala Asp Leu Pro Thr Tyr Ala Phe Asp
 2545 2550 2555 2560
 His Glu His Tyr Trp Leu Arg Ala Ala Asp Thr Ala Ser Asp Ala Val
 2565 2570 2575
 Ser Leu Gly Leu Ala Gly Ala Asp His Pro Leu Leu Gly Ala Val Val
 2580 2585 2590
 Gln Leu Pro Gln Ser Asp Gly Leu Val Phe Thr Ser Arg Leu Ser Leu
 2595 2600 2605
 Arg Ser His Pro Trp Leu Ala Asp His Ala Val Arg Asp Val Val Ile
 2610 2615 2620
 Val Pro Gly Thr Gly Leu Val Glu Leu Ala Val Arg Ala Gly Asp Glu
 2625 2630 2635 2640
 Ala Gly Cys Pro Val Leu Asp Glu Leu Val Ile Glu Ala Pro Leu Val
 2645 2650 2655
 Val Pro Arg Arg Gly Gly Val Arg Val Gln Val Ala Leu Gly Gly Pro
 2660 2665 2670
 Ala Asp Asp Gly Ser Arg Thr Val Asp Val Phe Ser Leu Arg Glu Asp
 2675 2680 2685
 Ala Asp Ser Trp Leu Arg His Ala Thr Gly Val Leu Val Pro Glu Asn
 2690 2695 2700
 Arg Pro Arg Gly Thr Ala Ala Phe Asp Phe Ala Ala Trp Pro Pro Pro
 2705 2710 2715 2720
 Glu Ala Lys Pro Val Asp Leu Thr Gly Ala Tyr Asp Val Leu Ala Asp
 2725 2730 2735
 Val Gly Tyr Gly Tyr Gly Pro Thr Phe Arg Ala Val Arg Ala Val Trp
 2740 2745 2750

Arg Arg Gly Ser Gly Asn Thr Thr Glu Thr Phe Ala Glu Ile Ala Leu
 2755 2760 2765
 Pro Glu Asp Ala Arg Ala Glu Ala Gly Arg Phe Gly Ile His Pro Ala
 2770 2775 2780
 Leu Leu Asp Ala Ala Leu His Ser Thr Met Val Ser Ala Ala Ala Asp
 2785 2790 2795 2800
 Thr Glu Ser Tyr Gly Asp Glu Val Arg Leu Pro Phe Ala Trp Asn Gly
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 Leu Arg Leu His Ala Ala Gly Ala Ser Val Leu Arg Val Arg Val Ala
 2820 2825 2830
 Lys Pro Glu Arg Asp Ser Leu Ser Leu Glu Ala Val Asp Glu Ser Gly
 2835 2840 2845
 Gly Leu Val Val Thr Leu Asp Ser Leu Val Gly Arg Pro Val Ser Asn
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 Arg Val Asp Trp Thr Pro Leu Ser Ser Val Asp Thr Ser Gly Arg Val
 2885 2890 2895
 Pro Ser Trp Leu Pro Val Ala Thr Ala Glu Glu Val Ala Thr Leu Ala
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 Asp Asp Val Leu Thr Gly Ala Thr Glu Ala Pro Ala Val Ala Val Met
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 Glu Ala Val Ala Asp Glu Gly Ser Val Leu Ala Leu Thr Val Arg Val
 2930 2935 2940
 Leu Asp Val Val Gln Cys Trp Leu Ala Gly Gly Gly Leu Glu Gly Thr
 2945 2950 2955 2960
 Lys Leu Ala Ile Val Thr Arg Gly Ala Val Pro Ala Gly Asp Gly Val
 2965 2970 2975
 Val His Asp Pro Ala Ala Ala Ala Val Trp Gly Leu Val Arg Ala Ala
 2980 2985 2990
 Gln Ala Glu Asn Pro Asp Arg Ile Val Leu Leu Asp Val Glu Pro Glu
 2995 3000 3005
 Ala Asp Val Pro Pro Leu Leu Gly Ser Val Leu Ala Asp Gly Glu Pro
 3010 3015 3020
 Gln Val Ala Val Arg Gly Thr Thr Leu Ser Ile Pro Arg Leu Ala Arg
 3025 3030 3035 3040
 Ala Ala Arg Pro Asp Pro Ala Ala Gly Phe Lys Thr Arg Gly Pro Val
 3045 3050 3055
 Leu Val Thr Gly Gly Thr Gly Ser Leu Gly Gly Leu Val Ala Arg His
 3060 3065 3070
 Leu Val Glu Arg His Gly Val Arg Gln Leu Val Leu Ala Ser Arg Arg

3075	3080	3085
Gly Leu Asp Ala Glu Gly Ala Lys Asp Leu Val Thr Asp Leu Thr Ala 3090	3095	3100
Leu Gly Ala Asp Val Ala Val Ala Ala Cys Asp Val Ala Asp Arg Asp 3105	3110	3115 3120
Gln Val Ala Ala Leu Leu Thr Glu His Arg Pro Ser Ala Val Val His 3125	3130	3135
Thr Ala Gly Val Pro Asp Ala Gly Val Ile Gly Thr Val Thr Pro Asp 3140	3145	3150
Arg Leu Ala Glu Val Phe Ala Pro Lys Val Thr Ala Ala Arg His Leu 3155	3160	3165
Asp Glu Leu Thr Arg Asp Leu Asp Leu Asp Ser Phe Val Val Tyr Ser 3170	3175	3180
Ser Val Ser Ala Val Phe Met Gly Ala Gly Ser Gly Ser Tyr Ala Ala 3185	3190	3195 3200
Ala Asn Ala Tyr Leu Asp Gly Leu Met Ala His Arg Arg Ala Ala Gly 3205	3210	3215
Leu Pro Gly Gln Ser Leu Ala Trp Gly Leu Trp Asp Gln Thr Thr Gly 3220	3225	3230
Gly Met Ala Ala Gly Thr Asp Glu Ala Gly Arg Ala Arg Met Thr Arg 3235	3240	3245
Arg Gly Gly Leu Val Ala Met Lys Pro Ala Ala Gly Leu Asp Leu Phe 3250	3255	3260
Asp Ala Ala Ile Gly Ser Gly Glu Pro Leu Leu Val Pro Ala Gln Leu 3265	3270	3275 3280
Asp Leu Arg Gly Leu Arg Ala Glu Ala Ala Gly Gly Thr Glu Val Pro 3285	3290	3295
His Leu Leu Arg Gly Leu Val Arg Ala Gly Arg Gln Gln Ala Arg Ala 3300	3305	3310
Ala Ser Thr Val Glu Glu Asn Trp Ala Gly Arg Leu Ala Gly Leu Glu 3315	3320	3325
Pro Ala Glu Arg Gly Gln Val Leu Leu Glu Leu Val Arg Ala Gln Val 3330	3335	3340
Ala Gly Val Leu Gly Tyr Arg Ala Ala His Gln Val Asp Pro Asp Gln 3345	3350	3355 3360
Gly Leu Phe Glu Ile Gly Phe Asp Ser Leu Thr Ala Ile Glu Leu Arg 3365	3370	3375
Asn Arg Leu Arg Ala Arg Thr Glu Arg Lys Ile Ser Pro Gly Val Val 3380	3385	3390
Phe Asp His Pro Thr Pro Ala Leu Leu Ala Ala His Leu Asn Glu Leu 3395	3400	3405

Leu Arg Lys Lys Val
3410

<210> 9

<211> 226

<212> PRT

<213> Amycolata autotrophica

<400> 9

Met Ala Ile Pro Tyr Ser Ser Leu Ala Tyr Glu Leu Arg Asp Ala Val
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Asn Val Val Asp Leu Asp Glu Asp Asp Val Phe Val Thr Ser Ile Ala
20 25 30

Glu Gly Gln Gly Gly Ala Cys Tyr His Leu Asn Arg Leu Phe His Arg
35 40 45

Leu Leu Thr Glu Leu Gly Tyr Asp Val Thr Pro Leu Ala Gly Ser Thr
50 55 60

Ala Glu Gly Arg Glu Thr Phe Gly Thr Asp Val Glu His Met Phe Asn
65 70 75 80

Leu Val Thr Leu Asp Gly Ala Asp Trp Leu Val Asp Val Gly Tyr Pro
85 90 95

Gly Pro Thr Tyr Val Glu Pro Leu Ala Val Ser Pro Ala Val Gln Thr
100 105 110

Gln Tyr Gly Ser Gln Phe Arg Leu Val Glu Gln Glu Thr Gly Tyr Ala
115 120 125

Leu Gln Arg Arg Gly Ala Val Thr Arg Trp Ser Val Val Tyr Thr Phe
130 135 140

Thr Thr Gln Pro Arg Gln Trp Ser Asp Trp Lys Glu Leu Glu Asp Asn
145 150 155 160

Phe Arg Ala Leu Val Gly Asp Thr Thr Arg Thr Asp Thr Gln Glu Thr
165 170 175

Leu Cys Gly Arg Ala Phe Ala Asn Gly Gln Val Phe Leu Arg Gln Arg
180 185 190

Arg Tyr Leu Thr Val Glu Asn Gly Arg Glu Gln Val Arg Thr Ile Thr
195 200 205

Asp Asp Asp Glu Phe Arg Ala Leu Val Ser Arg Val Leu Ser Gly Asp
210 215 220

His Gly
225